ELECTRICAL REVIEW

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4th June, 1948

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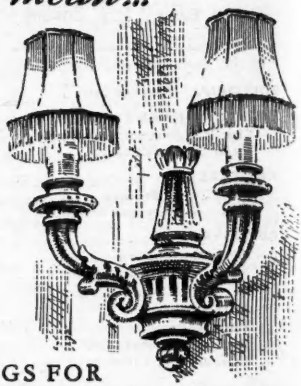

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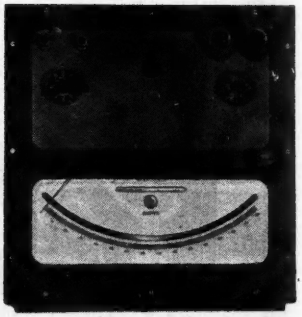

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ELECTRICAL REVIEW

THE OLDEST ELECTRICAL PAPER — ESTABLISHED 1872

Vol. CXLII. No. 3680 4th JUNE, 1948 9d. WEEKLY

First and Last

Success of the I.M.E.A. Conventions

THE first Convention organized by the Municipal Electrical Association (not then "Incorporated") was held in June, 1896, under the presidency of the late Mr. Arthur Wright, then borough electrical engineer of Brighton. It began in London and was continued at Brighton. At that time the *Electrical Review* expressed the opinion that "the papers presented were of considerable value, and the discussions evoked, though not revealing any striking powers of oratory, were practical and such as one would expect from men with little leisure outside their vocation."

"Outsiders" Invited

We expressed regret that the company engineers had not been admitted to the Association but noted that they had been invited to the Convention and given "more than ordinary facilities" for expressing their views on the papers.

Advocates of nationalization would have been pleased to discover during the debates on the 1947 Bill that the *Electrical Review* also said:—"Ostensibly the objects of a municipality and a company in supplying electricity are as divergent as the two poles. The municipality seeks to improve the conditions of the community by undertaking what is essentially a public service, and the company endeavours to make dividends for the shareholders." Of course the companies discovered in time that they could only pay dividends by providing a real public service, but anyhow that question has now been laid to rest.

Commenting on Mr. Wright's address, we thought that some of the points with which he dealt were outside the scope of the municipal electrical engineer but that the commercial and technical questions which he raised would alone provide sufficient topics for the next ten or twelve Conventions. In fact they have lasted longer than this; some of the problems are of perennial freshness and have not yet been satisfactorily solved. Mr. Wright also contributed one of the eight papers read at the Convention in which he analysed the electricity supply expenditure into "running" and "standing-by" costs and suggested equitable methods of charge. The other authors included Mr. C. H. Wordingham (afterwards President of the I.E.E.) and Mr. J. H. Rider (the well-known consultant).

Assessment of Value

So much for the first of the Conventions. Next week Eastbourne will see the last of this brilliant series, for the I.M.E.A. is in liquidation. People in all branches of the electrical industry have happy recollections of these gatherings which have provided an annual opportunity—for many the only opportunity—of meeting fellow engineers in the same branch or in other walks of electrical life.

Following the example set at Brighton in 1896, papers on technical and commercial aspects of electricity supply have been read and discussed at every Convention and no doubt much good has resulted. But the social side has been even more valuable. Ample opportunity has been afforded to delegates and guests to cultivate

their more human relationships, not less so because " shop " has predominated on most occasions. These annual gatherings have, no doubt, been responsible for much of the goodwill which is so strong in this industry to-day.

Everybody in the industry will agree that the Convention has filled a real need and served a most useful purpose and although, as we have said, next week's gathering is the last of a series, a new series under new auspices will have to be instituted. We shall have more to say on this subject when we have returned from Eastbourne with impressions gathered there.

Rubber Statistics

THE consumption of natural rubber during 1947 although still much below production (1,100,000 against 1,260,000 tons) left a smaller balance than that in 1946 which was 282,500 tons, according to the *Rubber Statistical Bulletin* for April (W. H. Smith & Son's branches, 2s.). On the other hand, it is estimated that the consumption of synthetic rubber (625,000 tons) again outran production (559,000 tons). United Kingdom consumption of natural rubber rose from 96,600 to 153,600 tons, but the use of synthetic rubber fell sharply from 30,100 to less than 3,000 tons. Consumption of synthetic rubber in this country in 1945 was nearly 64,000 tons. Of the 11,600 tons of rubber used by United Kingdom cable makers in 1947 only 988 tons was synthetic material, but that was a higher proportion than was shown in the case of other industrial consumers.

An Invisible Export

IMPOSING as are the statistics of exported electrical products, they do not tell the whole story. In addition to the material articles of quality which Great Britain traditionally produces there is the sending abroad of technical knowledge with the practical ability to design the conditions of use of the manufactured goods. This is the function of consulting engineers. The two aspects are interwoven, since there is plenty of evidence that the happy relations established in their contacts overseas have influenced buyers in favour of British goods. It is very much to the point that Government Departments, as shown in the report on page 878 of the annual luncheon of the Association of Consulting Engineers, realize the value of the aid they give in this way.

Making it Known

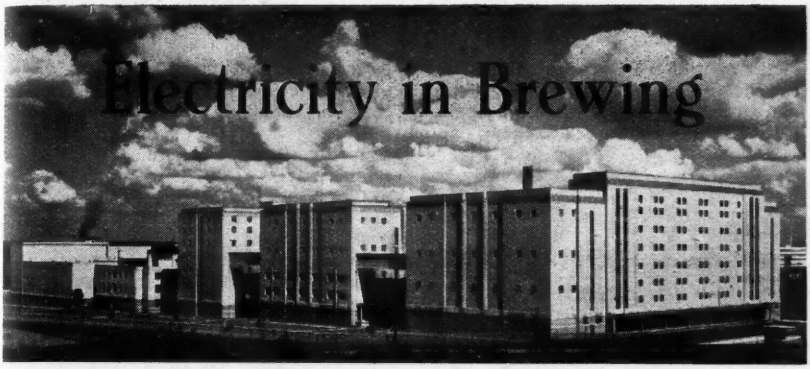
IN the long run satisfied clients no doubt provide the most effective testimony to the work of consulting engineers. In present circumstances, in view of the foregoing, gradual maturing of opinion is too lengthy a process. Moreover, there are many fields awaiting development in parts of the world in which the character of their services is unknown. While individual self-advertisement is, of course, impermissible, it seems highly desirable that the requisite information should be made as widely available as possible. This would be a legitimate task of the Association as representing them in their corporate capacity.

Heating and Cooking

WITH the completion of the first part of the experiments in connection with domestic heating and cooking at the Building Research Station comes the change from what should be to what will be in practice. The trained investigators who have set the bogey for fuel consumption under standard conditions in these heat-insulated houses have now made way for ordinary tenants with less scientific ideas. The records obtained during the past winter will be weighted by measurements that will reflect individual tastes. Comments of users will also be taken into account, and these may be expected to confirm the preference for the electrical way that has already been shown by the majority in previous inquiries of this kind.

Ignition-jet Combustion

THE remarkable improvement in the burning of low-grade fuels that has been shown in the small-scale tests of the ignition-jet system, reported on page 902, seems to justify easily the proposal to carry out extended trials at public-supply power stations. Costs of installation would be very small in comparison with the value of increased boiler capacity possibly obtainable. In addition to the larger effective grate area resulting from early and sustained ignition of the fuel, which is also beneficial in other ways, secondary effects have been noticed which may possess long-term advantages.



Applications to Processes in a Large Modern Brewery

ESTABLISHED shortly before the war, the brewery of Arthur Guinness, Son & Co., Ltd., at Park Royal, London, is believed to be the second largest in the world, i.e., second to the St. James's Gate Brewery, Dublin, and already its brewings have exceeded 36 million gallons in a year.

The production is essentially batch-continuous, and the flow line is from south to north through the aligned five great building blocks which constitute the brewery proper, with the malt store at the south or process-commencing end, the brew house next, then, in turn, the fermenting house and vat house, and finally the racking shed at the north end. Communication between the building blocks is provided by interconnecting bridges which not only serve for the transit of the materials and product from block to block during the processing, but also the means for carrying electric cables, water mains and other servicing equipments between the blocks. Batches may be started as frequently as one each day, and at any one time there may be 14 batches in the flow line at different stages of production.

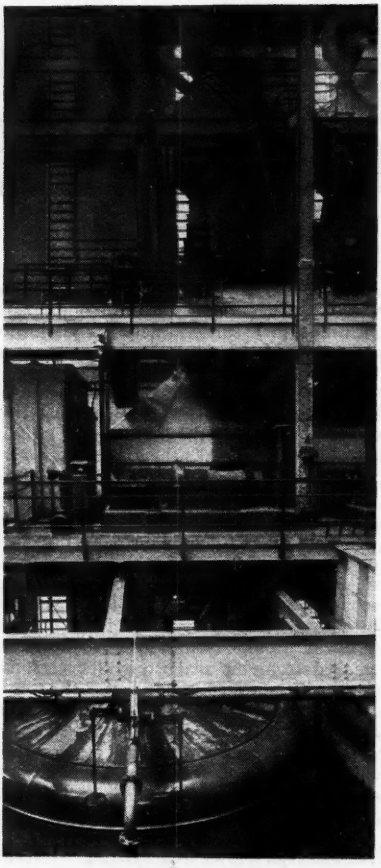
The flow line is from south to north through the aligned five great building blocks which are illustrated in our title picture

In the malt store where the already malted barley is received by both rail and road, the malt is served by one of the finest materials-handling installations we have seen. At the ground floor the sacks of malt are emptied into below-ground hoppers from which the material is carried by bucket elevators to the top or sixth floor, about 100 ft (30·5 metres) up. Five elevators engaged on this work are each driven by a 5-h.p. motor at the top of the elevator. At the top the elevators tip the malt into chutes which feed automatic weighing machines on the fifth floor. On this floor there are extraction equipments which remove the dust from the screens on the floors below; each incorporates a directly coupled 10-h.p., 1,300-r.p.m. motor-driven fan, and from each shaft there is a subsidiary belt transmission down to a suction or bag separator on the floor below.

From the weighing machines the malt passes down to "E" screens on the fourth floor, in which the tailings, i.e., pieces of string, wood, etc., are separated and discharged by special chutes to the second floor. At the same time the malt is passed over a separating magnet which holds back the tramp iron which, in turn, is removed from the magnet by the scrapers of a small endless collecting belt. The "E" screens are each driven by a 7-h.p., 750-r.p.m. motor through a line shaft to which there is a 2 to 1 ratio speed-reduction belt transmission to the line shaft from which there is also a transmission down to an "F" screen on the third floor.

After the initial cleaning on the fourth floor the malt passes down to "F" screens on the third floor where the final combings are extracted and the small corn is separated from the large, and both are passed to the second floor where they are separately weighed. The large corn, which has now received its final cleaning, is passed back again to the sixth floor by bucket elevators for distribution to the silos. There are 183 reinforced-concrete storage silos, each about

12 ft (3·6 m) in diameter and 65 ft (19·8 m) deep. They have a total capacity of 1,000,000 bushels (363,600 hectolitres) and they take up the bulk of the space in the malt store. The silos are arranged in rows of eight, and above each row is a cross conveyor from which the malt can be fed into any one of



In the brew house the malt passes from the grinding mill (top) into the kieve (bottom)

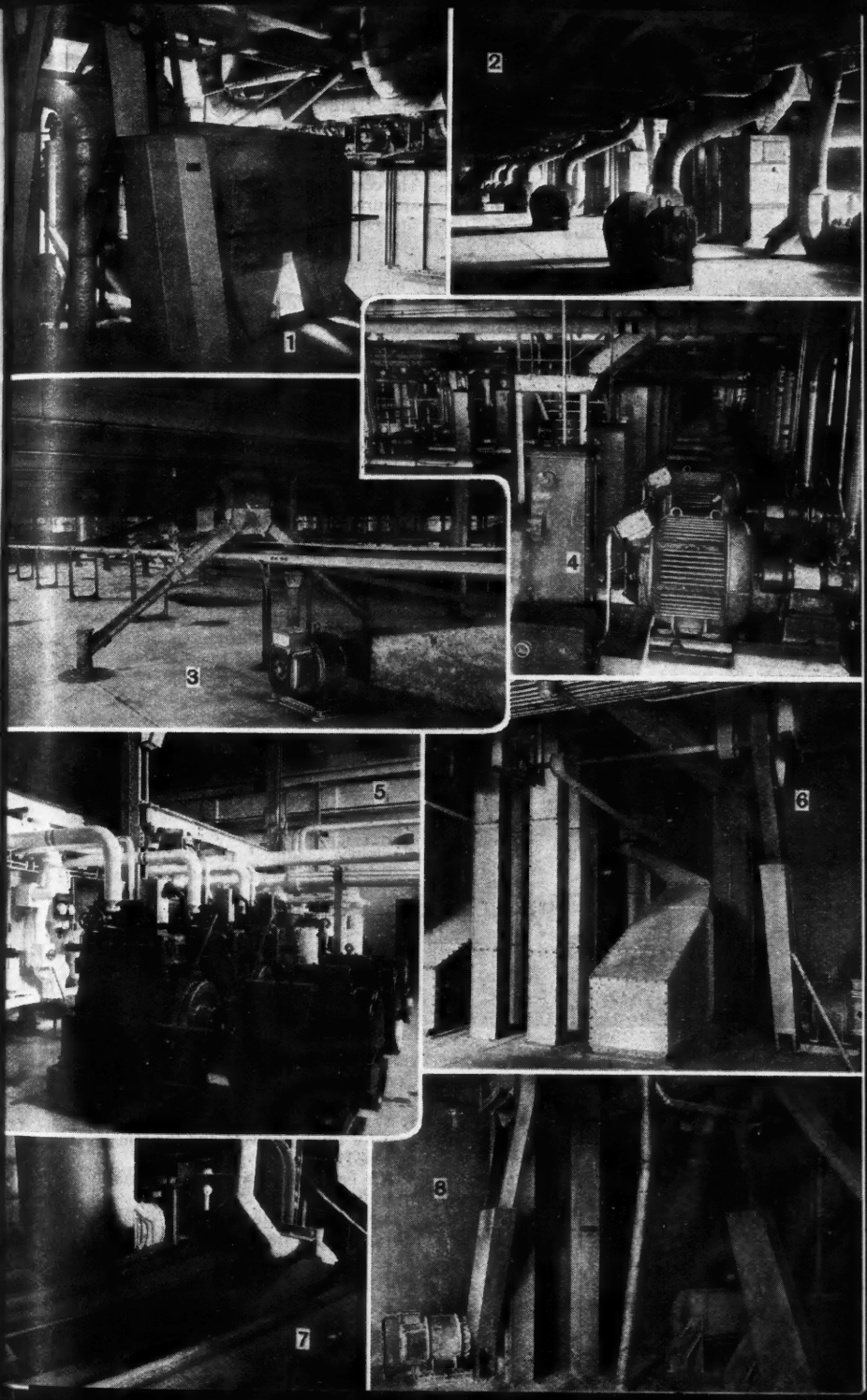
the silos by means of a travelling carriage in the belt system, with adjustable chutes which can be connected with the silos at will. Each cross conveyor is driven by a 3-h.p. motor with V-belt transmission to the end drum of the conveyor, and with an actual reduction ratio of about 1,000 to 200 r.p.m. These cross belts receive the malt from longitudinal belts, via chutes on travelling carriages, and, in turn, the longitudinal conveyors receive the malt from the elevators. The longitudinal-conveyor drives are very similar to those of the cross conveyors, the motors being of 4-h.p. capacity and the transmission reduction ratio 3 to 1.

The small corn requires further cleaning and is returned to the fifth floor again by bucket elevators and then passed down again to the fourth and third floors for this purpose. On the third floor the small corn is also treated in Carter disc screens, i.e., machines with cups on the discs which revolve vertically in the malt and thereby extract all the broken grain and small seeds and pass these on to a separate chute. The two Carter disc screens are group driven by a 10-h.p., 1,300-r.p.m. motor with a 2 to 1 ratio speed reduction in the belt transmission to a line shaft from which there is a 3 to 1 ratio belt transmission scheme to each screen. This group also embraces a subsidiary belt transmission up to a machine on the fourth floor. The cleaned small barley is then also returned to the sixth floor for distribution to the silos. The combings from the screens and the broken corn from the Carter disc screens are all bagged on the second floor.

When the malt in the silos is required for brewing it is discharged from the bottoms of the silos to a system of conveyors at ground level. There are 16 cross conveyors, each driven by a 3-h.p., 1,000-r.p.m. motor with a 5 to 1 ratio reduction V-belt transmission scheme on to the conveyor end drum. These cross conveyors discharge on to two lines of longitudinal conveyors, each being in two sections which are driven similarly to the cross conveyors. The longitudinal conveyors pass the malt on to two cup elevators which convey the material right up to the sixth floor again where it is transferred to two other belt conveyors and is taken via

(See opposite page)

(1) The "E" screens are each driven by a 7-h.p. motor. (2) On the fifth floor of the malt store are extraction equipments which remove dust from the screens; weighers also shown. (3) The malt is distributed to the storage silos by a comprehensive conveyor system. (4) The conveyance of the liquors from equipment to equipment involves large-scale pumping operations. (5) Driving the CO_2 compressors also represents an important electrical application. (6) The drive for the "final elevator" is at the sixth floor. (7) Malt from the silos is discharged on to a conveying system at ground level: left rear, longitudinal conveyor drive; centre rear, cross conveyor and drive. (8) Two Carter disc screens are group driven by a 10-h.p. motor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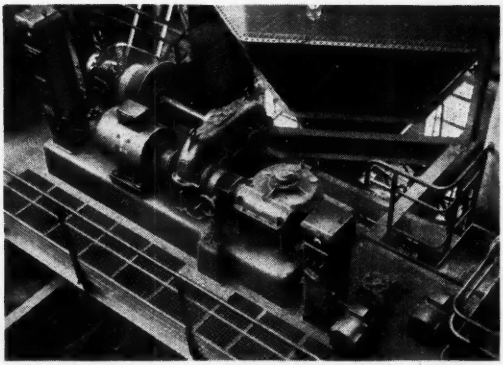
the interconnecting bridge into the brew house. Each of the " final delivery " elevators is driven by a 7-h.p., 750-r.p.m. motor on the sixth floor through a countershaft, with two 3-to-1 ratio speed-reduction transmissions, but there is a subsidiary transmission from the countershaft up to the elevators which bring the malt up from the third floor after final weighing. Particular significance is given to this comprehensive materials-handling scheme by the fact that it is automatically sequence controlled. In each of the Brookhirst motor contactor starters is a relay with connections brought out to a central control board on the sixth floor. At this board switches can be pre-set, so that the starter relays come into operation in the desired sequence. The grain-handling plant and the sequence-control system were provided by Henry Simon, Ltd.

Immediately inside the brew house the malt is handed over to an 8-h.p. motor-driven Redlar conveyor which runs over a line of mills which are fed by chutes along the conveyor line. The milling machines grind the malt in preparation for the commencement of the brew which takes place in mash tuns—large cylindrical vessels about 20 ft (6 m) in diameter and about 10 ft (3 m) high.



In the main kieve transmission system is a scheme for intercoupling between adjacent equipment

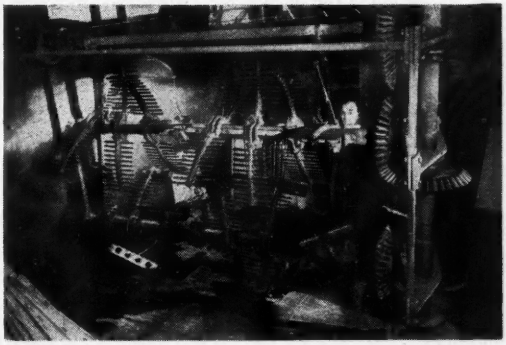
In each mash tun the malt is mixed with hot water to start the brew, the mixing being done by a system of rakes which revolve vertically about horizontal shafts while the shafts themselves revolve horizontally about a vertical shaft at the centre of the mash tun. This is effected by bevel-gear transmission at the central shaft and a pinion wheel at the outer end of the gearing equipment which engages a rack around the body of the mash tun. During the operation the content is sprayed from a horizontal sparge pipe at the top of the tun which also revolves with a rotating " housing " outside the central shaft. The central shaft and hence the mixing rakes are driven by a 10-h.p., 740-r.p.m. motor situated on a floor immediately above the kieve, with transmission through worm and bevel gearing on to the shaft. A small motor which drives, through worm and bevel gearing, the outer " housing " to which the kieve sparge pipe is attached is also mounted with its starter on the floor above.

In the transmission system between the main motor and the worm there is transmission to a secondary heavy shaft which can be readily linked up with the corresponding shaft on an adjacent equipment for the next mash tun, thus providing an interchange of transmission between the two driving units. A similar transmission interchange scheme is provided for each pair of mills to which we have already referred and which serve the mash tun via hoppers. Each mill is driven by a 7½-h.p., 780-r.p.m. motor.

The liquor, or wort as it is now called, is then pumped from the mash tun into coppers where the hops are introduced and the whole is boiled by means of internal steam-heated coils. From the coppers the material is then drained off into hop backs in which the liquor and hops are separated. The liquor is passed through wort coolers from which it is pumped to the fermenting house where it passes through plate-type coolers until the temperature is reduced to about 60 deg F (15·5 deg C) at which the liquor is ready for the yeast which is introduced after the liquor has been passed into fermenting vessels. Fermentation takes about three days. The liquor is then run into shallow rectangular troughs in which the surplus yeast is skimmed off. Part of this yeast is kept for future brewing and the remainder is disposed of as a by-product.

The beer is now ready for maturing, for which purpose it passes over to the vat house where it is collected in large oak vats for storage while the beer matures naturally.

There are in this building 24 large vats, each with a capacity of 43,200 gal (196,400 l), and eight smaller vats which will each hold 32,400 gal (147,300 l). After maturing, the beer is transferred into another series of "racking" vats in which it is clarified, and on completion of this process the beer is ready for sale after it has been casked in the racking shed. From the discharge of the liquor from the mash tuns there are only very minor direct electrical applications to the actual equipments through which the beer passes. The conveyance of the liquors from equipment to equipment, however, involves large-scale pumping operations for which there is a comprehensive range of motor-driven pumps with various driving capacities up to 20 h.p. There is direct coupling in all cases and the driving speed is usually about 1,500 r.p.m. The driving of the single-acting high-speed CO_2 compressors of the refrigerating plant also represents a considerable use of electricity. A number of these compressors are driven by 190-h.p. motors and smaller ones by 100-h.p. and 50-h.p. motors.



The contents of the kieve are mixed by a horizontal/vertical-operation system of rakes

Arduous Working Conditions

There are over 500 motors installed throughout the brewery, varying in size from ½ to 200 h.p. and representing a total installed motor load of about 5,000 kW. In many of the departments the working conditions are arduous for the motors and electrical equipment, dust and moisture generally being the causes of most difficulties. In such buildings as the brew house, fermenting house and cask-cleansing department, the hosing down of the equipment and floors is a daily procedure, and more often than not the motors and starters are treated likewise. Further, in some places the moisture which may be drawn into the interior of a running motor may be slightly acid, so that the windings are subject to attack. Generally, to overcome these difficulties the motors are totally enclosed and externally fan-cooled, and in a few cases they are pipe ventilated. As a further precaution drying lamps and breathing vents are incorporated in the starter bearings.

Shunt-wound motors are employed for all conveyors, elevators and pumps, where constant speed regardless of the load is essential. Series motors are installed on all cranes and plant requiring high starting torque. Generally the motors throughout are Laurence, Scott and Lancashire Dynamo & Crypto machines.

In all cases the motor control gear, which is almost exclusively of Brookhirst manufacture, is of the push-button automatic contactor type, largely because its operation is in the hands of unskilled men. In the case of the malt store, however, an additional reason is the automatic sequence control system. Where speed variation is required, hand-operated worm-drive shunt regulators are employed, with automatic accelerators to ensure full field starting and predetermined rate of acceleration.

The starters are fitted with overload and no-volt releases, backed up with h.r.c. fuses, the fuses being selected so that the overload devices deal alone with the ordinary motor overloads. The combination of h.r.c. fuses and automatic contactor motor starters has given excellent results during the past ten years or so, and at no time has there been a case where a normal overload has resulted in anything more than the particular motor involved being stopped.

We are indebted to Arthur Guinness, Son & Co., Ltd., for permission to visit the brewery and to publish this article, and to Mr. M. W. Plumpton, M.I.MECH.E., chief engineer, and Mr. F. Hornby, A.M.I.E.E., electrical engineer, for their assistance in obtaining the information.

Views on the News

Reflections on Current Topics

TO finance the supply of electricity to farms in the Isle of Man the Tynwald is being asked to make provision in future Budgets for payment of the capital cost of £80,300 in lump sums spread over three years. Confusion over the position of the farmer in relation to ordinary consumers led to deferment of the adoption of the report; the farmers themselves, it appears, did not wish to be looked upon as "a class apart." One member, who declared that the scheme lamentably failed to carry out the wishes of the Tynwald in that it dealt with only about a third of the countryside, made the revolutionary suggestion that there should be a five years' compulsory electrification plan with penalties for those who refused to take the supply !

* * *

When one remembers the dour opposition to earlier Scottish water power schemes, an impressive fact about the series of projects promoted by the North of Scotland Hydro-Electric Board is the smoothness of their passage. Discussing the latest schemes at Glen Garry and Glen Moriston, the *Highland News* speaks of the Board's good record and says it has proved in previous schemes that it is more than ready to listen to all suggestions and act on them where it is feasible and in the public interest. In fact, there is only one real grievance which (perhaps not unexpectedly) is a financial one: that recent Rating Acts have deprived the County Council of full revenue from the schemes. I am glad to see, however, that the writer considers the provision of a cheap and abundant electricity supply to farms and crofts to be good compensation for the monetary loss.

* * *

I learn from Mr. R. W. Lyndon, of Electrical & General Accessories (Leicester), Ltd., that his company's display at the recent Paris Fair was a source of great interest to French visitors who seemed very anxious to buy British goods. Unfortunately, this is extremely difficult at the moment because of the French Government's import restrictions, partly forced upon it by lack of sterling credits but also reflecting the desire, common to all countries, to limit imports to essential raw materials if possible. A French firm of importers suggests that this might be got over by "special supplementary agreements" to the existing commercial agreements, on a "compensation" basis. The suggestion appears to imply barter which, although now considered a primitive method of trading, is becoming quite common in modern "bilateral" arrangements.

* * *

Having passed remarks upon the B.E.A. poster myself I cannot be too hard upon Mr. Gammans who raised the matter in the House of Commons but I think he should have quoted the child's remark correctly. She is not saying "Mummy has forgotten to turn off the light !" I must agree with Mr. Gaitskell that the matter is not one for his Department to deal with. It is doubtful whether the matter should have been raised in the House at all but at all events the question led to some amusing supplementaries including that from Mrs. Jean Mann, who asked if the Minister was aware that the women of the country resented the wording and wished to have the word "Daddy" substituted for "Mummy."

* * *

It is bewildering how rapidly circumstances change nowadays. Not long ago there were reports of new houses being ready for occupation, except for the electrical fittings, which were difficult to obtain. Now the reverse is the case and houses replete with electrical installations and fittings are being finished in places where there is no electricity. In fact, so expeditious is this side of the business that I read of one instance in which the electrical equipment has arrived for six houses work on which has not yet begun and in a village which has no electricity supply at present.

* * *

Says the *Electrical World* of New York:—"Age of generating units doesn't mean a thing any more, not if they can still produce energy." To which I reply "Same here." But the comment is attached to a report that an American power company has just installed a 1912 6,250-kW set and is shortly to put into operation a 10,000-kW set dating from 1915. I wonder what is the age of the oldest set in regular service in a British power station ?—**REFLECTOR.**

Consulting Engineers

Exporting Technical Knowledge

AT last week's luncheon of the Association of Consulting Engineers, Mr. P. J. Noel-Baker (Secretary of State for Air) expressed his belief that engineering opportunities for providing new sources of wealth would be greater than ever in future. At least 1,200 rivers in the world offered prospects equal to those of the Tennessee Valley. Examples of possible developments were irrigation in Southern Rhodesia, oil in the Middle East, water power from the Himalayas (which had three times the potentiality of Boulder Dam) and a grid for Europe centred on the Alps.

With the establishment of world peace, engineers could get on with the job. Great Britain, with the highest educational standards in the world and possessing great ability of leadership, would not become a second-class power. The Association's members with their strictly maintained code of professional conduct showed that this country could export not only material goods but also technical knowledge.

Dr. D. J. F. Crowley (chairman, A.C.E.), after mentioning the presence of Mr. A. H. Dykes, founder of the Association in 1912, and of representatives of the Dominions, outlined the objects of the organization. Although its members were debarred from advertising or replying to advertisements, the Association was prepared to recommend engineers with the requisite experience, and independent of any trade connections, who could be relied on for advice on the development of existing as well as new natural resources, whether abroad or at home.

Mr. T. Howard Humphreys (vice-chairman, A.C.E.) voiced prevalent anxiety regarding the dearth of young engineers with practical training and possessing the requisite qualifications for consulting engineers. Sir William Douglas (Permanent Secretary, Ministry of Health) assured the Association that Government Departments fully realized the value of the unequalled world-wide experience of independent consulting engineers as a necessary supplement to their own engineering staffs. Mr. J. Dulanty (High Commissioner for Eire) joined in expressing appreciation of the work of the Association.

Mr. J. R. Beard (a past chairman, A.C.E.) referred to the chairman's initiative in compiling a " Who's Who " of consulting engineers who complied with the exacting code of etiquette of the Association. This directory, when completed, would help to make their functions more generally known abroad. It was not everywhere understood that their duties included not only the preparation of engineering plans but also such matters as the co-ordination of the work of contractors and responsibility for seeing a job through. In so doing they formed a spearhead for British trade overseas.

House-Heating Experiments

EXPERIMENTS on heating and cooking in twenty houses at Abbots Langley, Herts, by the Building Research Station were described in the *Electrical Review* of 26th September last. In the first stage the houses were considered to be occupied by an imaginary family of a father, mother and two children of school age. Actually the heating and cooking requirements of the family were simulated by assistants working to a normal household routine.

During the winter of 1947-48 there was enough cold weather to show the effect of a cold snap. In these well-insulated houses little condensation occurred with change from cold to mild weather, although traces appeared on the walls not directly warmed by pre-war types of open fire. In the houses heated throughout by modern appliances there was practically no condensation.

Nearly 2,000 readings were made every day and night to ascertain the amount of solid fuel, gas and electricity used, the indoor temperatures, hours of sunlight, outside shade temperatures, direction and force of wind, and rates of ventilation.

In the second stage now beginning, the tenants, all of whom have children, undertake to use only fuel supplied by the Building Research Station. Each family is lent a set of standard cooking utensils to prevent the use of old utensils, which can severely handicap an electric cooker or a modern solid-fuel cooker with a good hot-plate. Ashes are put into a special bin and collected for analysis. Tenants will ultimately be asked for comments. The results of this experiment, and of that on the insulation of houses, should enable houses to be built in the future in which the heating and cooking arrangements are such as to give greatly improved comfort and convenience combined with maximum efficiency and economy.

Advertisement Lighting

THE Control of Fuel Order, 1948 (S.I. 1948 No. 1078, H.M. Stationery Office, 1d.) re-enacts Article 5 of the Control of Fuel Order (No. 3), 1942 (which restricts the consumption of fuel in lighting fittings, etc., for advertisement purposes) with an amendment entitling the Minister of Fuel and Power to grant exemption by means of a licence.

PARLIAMENTARY NEWS

By Our Special Reporter

MR. HENDERSON STEWART asked the Speaker to reconsider a decision he had given in confirming the action of the Clerks at the Table in refusing a question about the breakdown in the electricity supply on Sunday, 23rd May. He said that the decision of the Clerks had been given on the now familiar ground that it was a matter for the British Electricity Authority and not for the Minister. But a breakdown affecting transport, broadcasting, industrial power, and millions of families was a very different matter from a question of day-to-day administration. Would it not be possible for the Speaker to exercise a discretion so that such questions could be put after a serious event like that which had occurred on Sunday ?

The Speaker said he came to the conclusion that the two parts of Mr. Henderson Stewart's question had been correctly refused. The first part asked the reasons why the breakdown took place, and the Electricity Authority had given those reasons in public. The second part asked if the Minister would take over power to run electricity and avoid further happenings.

Mr. Henderson Stewart said the question was what action had the Minister taken to inquire into the causes of the breakdown, and what steps did he propose to take to prevent a recurrence?

The Speaker said that meant that the Minister must take over the Electricity Board himself, which by statute he was prevented from doing.

Mr. Eden pointed out that before nationalization, if there was a serious railway accident or a coal-mine disaster, a Minister could always be asked about it. Where was this ruling leading? It was the duty of Ministers to give information at their disposal to Parliament.

Mr. Henderson Stewart said that supposing it had been a national breakdown of electricity, lasting twenty-four hours or more, surely the Minister could not escape responsibility for looking into it and reporting to the House?

The Speaker said he agreed that would be a major matter. But supposing one town had a breakdown, would that be a ground for having a question asked? There must be a reasonable limit.

Mr. H. Strauss and Mr. P. Roberts said that Section 5 (1) of the Electricity Act gave the Minister power to give a direction to the Electricity Authority.

The Speaker said that sub-section related to general directions. The question asked what action the Minister would take.

Eventually, Mr. H. Morrison, the Lord President of the Council, agreed to examine the points raised. The matter was difficult, and it was necessary to learn from experience. He said emphatically that it was undesirable for hon. members to develop a practice of submitting questions on fairly small matters of day-to-day management; that would demoralize the great undertakings concerned and produce a Civil Service red tape mentality.

Poster Criticized

Mr. Gammans asked the Minister of Fuel and Power if, before sanctioning the issue of the poster, " Mummy has forgotten to turn off the light," he consulted the Safety First Committee or any Government department concerned with the safety and well-being of children.

Mr. Gaitskell said that the poster referred to was issued by the British Electricity Authority, and not by his department.

Protection Against Radio-activity

Mr. Bevan, Minister of Health, moving the second reading of the Radio-Active Substances Bill, said that its purpose was to secure protection for the health of the workpeople and the public against harmful effects of undue exposure to dangerous radiation. It was important that Ministers should be given unusual powers, and many of the powers were novel because of the great difficulty in defining what it was they were talking about. In order to meet this requirement an advisory committee would be set up, and the following had been asked to nominate members:—The Medical Research Council, the Royal Society, the three Royal Medical Colleges, and the Medical Corporations for Scotland, the Faculty of Radiologists, the Department of Scientific and Industrial Research, the British X-ray and Radium Protection Society, the British Employers' Federation, and the T.U.C. No regulations could be made without this committee seeing the draft first.

The Bill was read a second time.

Important Russian Contracts

THE Brush Electrical Engineering Co., Ltd., and its associates, Mirrlees, Bickerton & Day, Ltd., and J. & H. McLaren, Ltd., with whom merger negotiations are proceeding, have signed contracts to the value of £2 million and are expecting to sign, within the next few days, further contracts valued at over £1 million for the supply to Russia of diesel engines, diesel-electric generating sets and ancillary equipment. Substantial deliveries have already been made on these contracts. A proportion is for equipment scheduled in the recent Anglo-Russian Trade Agreement. Mr. Alan P. Good, the managing director of the three concerns, has stated that the signing of the contracts will bring the total value of orders held by the group to over £14 million.

PERSONAL and SOCIAL

News of Men and Women of the Industry

CONSEQUENT upon the appointment of **Mr. F. Newey** as deputy-chairman of the Yorkshire Electricity Board, **Mr. J. P. Tucker,** D.L.C., M.I.E.E., manager of the Lincoln District, East Midlands Electricity Board, has been appointed manager of Lincolnshire Sub-Area No. 2. He is succeeded as manager of the Lincoln District by **Mr. J. Lightbown,** M.I.E.E., A.M.I.MECH.E., lately manager of the Nuneaton District of Leicestershire and Warwickshire Sub-Area No. 3.

Mr. J. Taylor, North of England manager for Ferranti, Ltd., has been appointed purchasing officer to the Merseyside and North Wales Electricity Board and will take up his new duties on 1st July. Mr. Taylor joined the Ferranti staff on his graduation from the Manchester College of Technology in 1924. He served with R.E.M.E. during the war, mainly in the Middle East, and attained the rank of lieutenant colonel. **Mr. N. Newton,** A.M.I.E.E., a transformer engineer and a member of the Ferranti staff since 1923, has been appointed to succeed Mr. Taylor as manager for the area covered by the North Western and the Merseyside and North Wales Electricity Boards.

Mr. J. W. Woolley, A.M.I.E.E., who, following the death of Mr. M. Whitgift, is acting hon. secretary and treasurer of the Batti-Wallahs' Society of which he has been a member since 1934, commenced his career with the West Ham Corporation Electricity Department in 1908. In 1914 he joined the P. & O. Steam Navigation Co., Ltd., and he subsequently served at Armstrong's Naval Yard, Newcastle-upon-Tyne (1915-18), with the Orient Steam Navigation Co. (1918-20) and with the British India Steam Navigation Co. (1920-28). He is now consulting electrical engineer to John Lewis & Co., Ltd., Suburban & Provincial Stores and subsidiary companies, where he started as chief electrical engineer in 1928. Mr. Woolley is a member of the Illuminating Engineering Society and of the Association of Supervising Electrical Engineers, being chairman of the Central London Branch of the Association.

Mr. J. W. Woolley

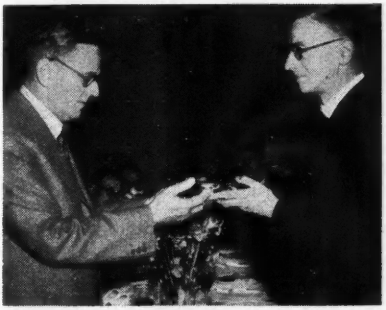
The president and Council of the Institute of Metals gave a dinner party at the Savoy Hotel, London, on 26th May in honour of **Mr. R. C. Stanley,** chairman and president of the International Nickel Co., of Canada, Ltd., and **Dr. P. D. Merica,** vice-president of the International Nickel Co. Sir Arthur Smout, president, who was in the chair, presented to Mr. Stanley the Institute of Metals (Platinum) Medal for 1948, awarded to him in recognition of his outstanding services to the non-ferrous metal industries.

Mr. H. Riley, who, as announced in our last issue, has been elected president of the Electrical Wholesalers' Federation for 1948, is managing director of John Riley & Son (Electrical), Ltd., of Sheffield. Mr. Riley was born in Sheffield and was educated at Firs Hill and the Central Secondary School of that city. He left school in 1916 to commence the business of John Riley & Son with his father, Mr. John Riley, who left Cammell Laird & Co., Ltd., at the same time. Later the partnership was incorporated as John Riley & Son (Electrical), Ltd.

Mr. H. Riley

Mr. L. H. Short, M.C., M.I.E.E., M.INST.T., a director of the English Electric Export & Trading Co., Ltd., has been awarded the Military Order of Christ, in the degree of *Comendador*, by the Portuguese Government.

Mr. W. W. Willmott, advertising manager of Siemens Electric Lamps and Supplies, Ltd., for the past twenty-five years, retired on 31st May, after thirty-six years' service with the company. He joined Siemens in 1912 as accountant at the company's Birmingham Branch, and was appointed advertising manager in May, 1923. To mark the occasion of his retirement the directors, management



Mr. R. E. Hesketh making the presentation to Mr. W. W. Willmott

and staff presented him with a radio set and other gifts. The company has appointed **Mr. H. R. Mallett** to succeed him as advertising manager.

At a dinner held at the Trocadero Restaurant, London, on 21st May, a presentation of a solid silver fruit dish was made to Mr. Willmott by Mr. R. E. Hesketh (G.E.C.) on behalf of the E.L.M.A. Publicity Committee.

Mr. J. Mould, for twenty-seven years the city electrical engineer of Leicester, who is now deputy-chairman of the East Midland Electricity Board, received from Mr. D. H. Parry, the new sub-area manager, a painting by the Leicester artist, Mr. J. N. Neal, the farewell gift of the staff of the Leicester Electricity Department. Mr. Mould asked that a cheque representing excess subscriptions should be given to the Electrical Industries Benevolent Association.

Mr. H. W. P. Matthey, chairman of Johnson, Matthey & Co., Ltd., has recently completed fifty years as a director of the company. To commemorate this representatives from the company's establishments in England gathered at headquarters on 26th May and presentations were made to Mr. Matthey. A silver model

Presentation to Mr. H. W. P. Matthey

of Mr. Matthey's yacht was presented to him by Mr. W. A. Dunbar (who has been with the company for fifty-one years) and a morocco-bound album containing the signatures of nearly 3,000 employees was handed to him by Miss H. A. Tacon (forty-three years' service).

Mr. Warren Storey, M.I.E.E., M.INST.C.E.(I.), has retired from the position of electrical engineer of Coras Iompair Eireann (Irish Railways). Mr. Storey was educated at St. Andrew's College, Dublin, and received his early training with Egan & Tatlow, electrical engineers, Dublin, and became the firm's principal technical assistant. He joined the former G.S. & W. Railway, Ireland, in 1911, as electrical engineer and was appointed electrical engineer to the amalgamated companies in 1925. On the formation of Coras Iompair Eireann in 1945, he took charge of the electrical work of the new company, and on the retirement of Mr. Finlay, electrical engineer, Tramways Department, Mr. Storey also became responsible for the electrical work in that section. He was chairman of the Irish Centre of the I.E.E. from 1935-37 and has been president of the Engineering and Scientific Association, Ireland. Some years ago, the former Railway Board presented Mr. Storey with a substantial premium in recognition of a comprehensive report which he submitted after a visit to the principal American railways. He was responsible some years back for the preparation of an electrification scheme relating to the suburban section which for financial reasons could not then be authorized.

Crompton Parkinson, Ltd., announce personnel movements in their Supplies Division sales organization. **Mr. W. A. Benson** is now lamp sales manager at the London office, and his previous position of London branch manager is filled by **Mr. R. R. Gorringe,** late manager of Manchester branch. **Mr. V. P. MacNaughton** is now Manchester branch manager, and his previous position as manager of the Glasgow branch is held by **Mr. J. R. L. Smith. Mr. E. W. MacGrain** succeeds Mr. Smith as manager of the Edinburgh branch.

Mr. R. Childs, export manager, Thorn Electrical Industries, Ltd., arrived back in England by air on 24th May after a four months' trip to Africa and Middle East, during which he covered over 30,000 miles through eight countries visiting distributors and agents.

Mr. W. C. Bexon, who was for twenty-four years general manager and engineer with the Ayrshire Electricity Board and previously was burgh electrical engineer and tramways manager at Kilmarnock, has entered into practice as William C. Bexon & Partners, consulting engineers, 2, New Bridge Street, Ayr.

Mr. D. A. Eyers, a member of the staff of the G.E.C. Research Laboratories, Wembley, who is an Olympic "possible," won the 2-mile steeplechase at the British Games held at the White City on Whit Monday by 60 yards. He was representing Middlesex.

Mr. J. F. Lincoln, president of the Lincoln Electric Co., Cleveland, Ohio, U.S.A. (associated with the Lincoln Electric Co., Ltd., Welwyn Garden City, Herts.) is visiting this country at the end of June. Arrangements have been made for Mr. Lincoln to address a meeting of the Institute of Industrial Administration and the Institute of Production Engineers on the subject of production incentives on 1st July. Tickets are available to interested executives from the Lincoln Electric Co., Ltd., Welwyn Garden City, Herts.

At the annual meeting of the Nottingham Centre (Midland area) of the Illuminating Engineering Society held at the Trent Bridge Hotel, Nottingham, on 21st May, the services of **Mr. C. S. Caunt** were recognized by the presentation of an inscribed gold wrist watch. The newly appointed chairman, Mr. W. K. Martin, made the presentation. Mr. R. H. Ellis was elected vice-chairman and Mr. G. L. Ross hon. treasurer.

To mark the retirement, after thirty-five years' service, of **Mr. W. L. Webb,** Derby electricity showroom manager, Mr. F. H. Pooles, sub-area manager, on behalf of employees of No. 5 Sub-Area of the East Midlands Electricity Board, presented him with a wallet of notes with which to buy a television set. A leather handbag was presented to his wife. Mr. Webb is succeeded by **Mr. F. E. Ainley,** assistant manager since 1935.

Mr. C. Cholerton Smith has been appointed to the position of city lighting engineer, Liverpool, which he had held in an acting capacity since Mr. J. Eccles became chairman of the Mersey and North Wales Electricity Board.

Mr. A. W. Robertson, chairman of the Westinghouse Corporation of America, after a two-months' visit to South Africa, Portugal, Spain, Italy, Switzerland and France, will be spending a few days in London before returning to the United States. He expects to stay at the Savoy Hotel from 8th to 11th June.

Despite an almost continuous downpour the annual sports and gala of the London Establishments of the **General Electric Co., Ltd.,** were held on Saturday last at the company's Wembley sports ground. A large crowd gathered to witness the fifty or more events, and it was evident that something more than a wet day was required to damp the enthusiasm of the competitors and spectators. Many of the side attractions were perforce cancelled, but the indoor arrangements, which included a concert in Hirst Hall, did much to compensate for the loss of these. The children's events did not take place but as each young competitor received a prize all were satisfied. The beauty competition was, as usual, one of the principal attractions and this year's winner was Miss Margery Swann (Fraser & Chalmers). The winners of the Leslie Gamage trophy for the London establishment gaining the most points, were the Osram Works. The Hon. Mrs. Leslie Gamage presented the cups and prizes.

To celebrate the fiftieth anniversary of the **British Electric Transformer Co., Ltd.,** a party of more than a thousand employees and their relatives on 8th May enjoyed an outing to Brighton as guests of the company. The chairman of the outing was Mr. E. T. R. Ball, general manager, while others present included Mr. J. Harwood Fryer (director and joint managing director, Crompton Parkinson, Ltd.); Mr. F. E. Berry (director, B.E.T. Co.); Mr. C. F. Dickson (director, Crompton Parkinson); and Mr. J. V. Daniel and Mr. A. Parkinson, executive directors. Before tea at the Aquarium, Mrs. F. E. Berry presented gold wristlet watches to the ladies who had completed over twenty-five years' service with the company, and Mr. Fryer handed a cheque to Mr. J. Kennett, who is retiring after more than fifty years' service.

On 8th May the new Cumberland turf bowling green at the Chelmsford sports ground of **Crompton Parkinson, Ltd.,** was officially opened with the home team playing a four-rink match against the Essex County Executive whose team included two English internationals. The ceremony of bowling the first wood was performed by Mr. T. H. Windibank, works director (South). Although the club lost on all four rinks, 85 to 54, they were congratulated by the county officials on their standard of play.

Members of the **Sparks Dart League,** which was formed from (former) municipal undertakings in the London Area on the northern side of the Thames, met recently at the Social Room of the Willesden undertaking under the chairmanship of Mr. A. B. Catling, local manager, Willesden. Mr. Fountain (Barking) beat Mr. Dew (Shoreditch) in the individual championship by a considerable margin. The Vice-President's Trophy was won by Barking for the second year in succession. Hammersmith won the league championship by beating Willesden by 1 point.

Obituary

Mr. O. Coupe.—We regret to record the death on 27th May at the age of sixty-two of Mr. Oliver Coupe, general works manager of Ferranti, Ltd. Mr. Coupe had served the company for over forty years, having joined the staff in 1907 as a draughtsman. Associated from the first with the manufacture of electricity meters, he became works manager of the Meter Department and occupied the position until, upon the extension of the company's activities to handle war contracts, he became manager of the Fuse Factory. At the request of the Government he spent a period during the war in the United States and Canada to assist in getting factories there into production. On his return from America he was appointed assistant general works manager and was promoted general works manager towards the end of 1946.

Mr. L. Lodge.—The death occurred at Barnt Green, Worcestershire, on 26th May of Mr. Lionel Lodge, fourth son of the late Sir Oliver Lodge, and until recently managing director of Lodge-Cottrell, Ltd., and a director of Lodge Plugs, Ltd. He was sixty-five.

Mr. E. Varley-Haigh, C.B.E., M.I.MECH.E., general manager of Thermega, Ltd., died suddenly on 24th May.

Mr. F. Wallers.—The death is reported, at the age of seventy-one, of Mr. Frank Wallers, a director of Mather & Platt, Ltd.

CORRESPONDENCE

Letters should bear the writers' names and addresses, not necessarily for publication. Responsibility cannot be accepted for correspondents' opinions.

Colouring of Cables

SOME time ago, while making modifications to a wiring installation in a house built about ten years ago, it was necessary to withdraw one of the black neutral connections. The rubber covering of this piece of cable disintegrated when gripped by the pliers and was found to be perished. On examination the cable was seen to have been originally finished in the conventional red but in order to produce a " black " the whole reel had been dipped in black paint. We should be glad if you would give this publicity as it is a practice which should be condemned by all cable manufacturers.

St. Albans. H. MAURICE UPWARD.

Electricity in the Navy

I THINK Mr. R. C. Gordon may take it for granted that the term " Double L " refers to the swept path astern of the minesweepers and not to any peculiarity in the conductors or electrodes.

Although the whole subject remained in the " top secret " category throughout the war with Germany a considerable amount of information has since been released and Mr. Gordon may be interested to know that a scientific article written by Lt. Cdr. S. J. Brookfield entitled " Mines and Countermeasures " which appeared in the January, 1946, number of " Discovery " discussed electric minesweeping at some length.

Cardiff. C. F. NOCK,
Commander.

" Simmerstats " for Grilling

IN your review of the British Industries Fair on 14th May we were pleased to note reference to the " Simmerstat " hot-plate control, which we manufacture. As you are no doubt aware, this control is now being fitted by all leading cooker manufacturers as standard, not only for the control of hot-plates but also in a number of cases for controlling grill-boilers. Consequently, we feel that we must write to you regarding your reference to the effect that a " Simmerstat " is superfluous for grilling.

The normal arrangement provided by manufacturers in the construction of a grill is that when controlled by a three-heat switch there is no stage between full heat (total element fully energized) and medium heat (half element fully energized). Consequently, most grilling operations have to be carried out with the grill in the " full-on " position.

The " Simmerstat " overcomes this to a great extent and in addition, as most cookers of the domestic type are normally fitted with a grill-boiler which also provides heat for a warming cupboard, the " Simmerstat " becomes invaluable to provide the necessary control.

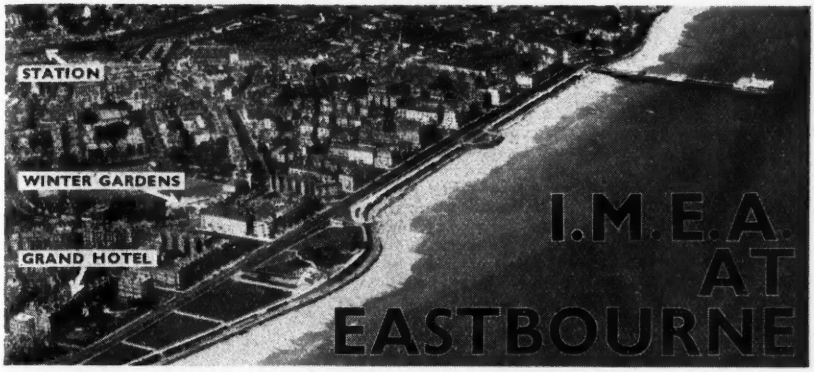
SUNVIC CONTROLS, LTD.,
London, W.C.2. C. E. WALTERS,
Sales Manager,
Domestic Products.

State Enterprise

IN a paper on " Recent Developments in Public Enterprise " read to a conference of the Chartered Institute of Secretaries at Harrogate, Mr. H. F. Carpenter, secretary of the British Electricity Authority, said that some of the recent criticism of State enterprise was misconceived. These public enterprises had come to stay and it was to the public interest—the consumer interest—that all difficulties should be overcome as quickly as possible. There was no evidence of " jobs for the boys " or sinecures for the incompetent. On the contrary, there were balanced teams of experts in all departments, many of them old collaborators under private enterprise, determined to work unitedly for the public weal. He was convinced that the framework was right to permit them to move, with a speed that would surprise the public, towards the solution of the major problem of centralized control and decentralized execution.

Mr. G. W. E. Hooper, as secretary of a large company manufacturing electrical appliances, raised the question of the powers of State enterprise to compete with manufacturers. He thought that the powers given to the British Electricity Authority went very much beyond what it should be permitted to do.

Mr. C. R. Heathcock emphasized that mere change to public ownership made little difference to actual control. In all the big industries ownership was already divorced from management. With regard to price, it was not nationalization that was responsible for the rise in the price of electricity, but the increase in the cost of coal and wages. As one who had strongly opposed nationalization but had now accepted a seat on an Area Board, he was satisfied that the only thing to do now was to strive to make the enterprise work for the benefit of the community.



A FULL programme, both business and social, awaits the 1,500 delegates who are attending the Convention of the Incorporated Municipal Electrical Association at Eastbourne next week. Badges will be issued on Monday from 10 a.m. to 5 p.m. at the Winter Gardens, where in the afternoon, at 3 p.m., the president, Mr. J. Eccles, will officially open the Electrical Exhibition organized by the British Electrical Development Association. Mr. and Mrs. Eccles will also hold a reception at the Winter Gardens in the evening and there will be a dance.

The business proceedings will open on Tuesday at 10.15 a.m., with a civic welcome by the Mayor of Eastbourne, Councillor Randolph Richards, followed by the presidential address. In the afternoon Mr. H. G. Bell (formerly chief engineer and manager, Stretford & District Electricity Board) and Dr. D. M. Smith (chief engineer, Gas Turbine Engineering Department, Metropolitan-Vickers Electrical Co., Ltd.) will give a paper on "Gas Turbines for Public Electricity Supply," while the ladies will be entertained to tea by Mrs. Eccles at the Pier Music Pavilion. The Mayor and Mayoress will hold a reception in the evening.

Wednesday is a day off from serious business. Whole-day motor coach tours have been arranged to Canterbury; Chichester, Seaford, Brighton and Arundel; and Tunbridge Wells, Penshurst, Hever Castle and Dormans Land. An afternoon trip to Hastings has also been organized.

Mr. R. C. Golding, formerly borough electrical engineer and manager, Southend-on-Sea Electricity Department, will present a paper on Thursday morning, his subject being "Reorganization for Efficiency on a Regional Basis." A discussion will follow. At 1 p.m. at the Grand Hotel the Electrical Association for Women will be holding its customary I.M.E.A. luncheon. No session has been arranged for the afternoon.

The Rt. Hon. Hugh Gaitskell, Minister of Fuel and Power, will be the principal guest at the annual dinner at the Grand Hotel at 7.30 p.m., and the speeches made by him and Lord Citrine, chairman of the British Electricity Authority, will be relayed to the Winter Gardens, where many of those not among the 400 attending the dinner will be enjoying a dance.

At the fourth and final session of the Convention on Friday morning, there will be a symbolic ceremony transferring the responsibility for future Conventions to the British Electricity Authority, Lord Citrine giving an address.

All delegates are eligible to compete in a golf competition for the G. P. Dennis Trophy held in aid of the Institution of Electrical Engineers' Benevolent Fund. It is being held at the Royal Eastbourne Golf Club and competitors may play any time between Saturday afternoon and 5 p.m. on Thursday. Players may take out as many cards as they wish during the competition, on paying the entry fee for each card.

Eastbourne also offers all the usual outdoor attractions of a seaside holiday resort—bathing, boating, bowls, cricket, fishing, putting, riding, sailing, tennis and boat trips, with indoor entertainments in the form of theatre, variety, concert party and cinema shows. Those who stay until Sunday will have the opportunity of hearing the Royal Philharmonic Orchestra conducted by Sir Thomas Beecham at the Winter Gardens.

I.M.E.A. Exhibition

Representative Display of Domestic Appliances

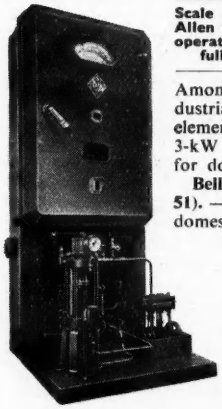
Coming less than a month after the British Industries Fair and with many of the same manufacturers participating, the Electrical Exhibition being organized by the British Electrical Development Association on behalf of the I.M.E.A. at the Winter Gardens, Devonshire Park, Eastbourne, contains only comparatively few products which are making their first appearance. In the restricted space available, however, can be seen perhaps the most representative displays of the year so far as the latest domestic appliances are concerned and there are many interesting exhibits covering street lighting fittings, distribution and installation equipment and instruments. The exhibition is open from Monday to Friday next, from 10 a.m. to 6 p.m., the public being admitted on Wednesday and Friday.

Aidas Electric, Ltd. (Stand 61).—A new 12-gal. cistern-type water heater has a one-piece copper cold-water tank without soldered joints. Appearance has been improved and the outflow is nearly double that of models it replaces. In another new heater, a 50-gal. floor-mounting unit, smaller than the original type, efficiency has been improved by rearrangement of the inlet and outlet and the insulation of the element plates. One, two or three element plates can be fitted with loadings of 3, 6 or 9 kW

Automatic Telephone & Electric Co., Ltd. (Stand 36).—The new "Rythmatic" ripple control relay is only one-third the size of its predecessor, enabling it to be accommodated in existing switch housings, but despite this more facilities have been provided. Advantages of the coded dual-selective principle employed are the multiplicity of signals, the solution of the "spill-over" problem, immunity from spurious operation and economy in maintenance.

Backer Electric Co., Ltd. (Stand 33).—In conjunction with "Diamond H" Switches, Ltd., this company is introducing an entirely new approach to the solution of the problem of simmering control. It takes the form of a three-circuit radiant boiling plate of the open tube type in which the loading of each tube has been carefully selected to give a fine regulation of the lower wattages. The plate is controlled by a specially designed nine-heat switch to give a selective loading ranging from 2,000 W down to 170 W with an intermediate boiling loading of 1,250 W for a 6-in. utensil, and steps of 420, 285, 245, 220 W down to 170 W. There are also 2-kW double-tube plates for simple three-heat control. 2-kW single-tube plates for impulse type control, and the original "Backer" encased type plates. Other elements on view are for grills, ovens, kettles, urns, etc.

Bastian & Allen, Ltd. (Stand 7).—A working model of an electrode steam boiler less than 12 in. high is controlled from a standard panel. In contrast there is a complete standard 70-kW steam boiler. A special feature of a water boiler giving 102,000 B.Th.U. per hr., apart from the labour-saving and cleanliness aspects, is the small amount of space required. Representative of domestic appliances are thermostatically-controlled electric storage water heaters of the pressure, displacement and gravity types.



Scale model of a Bastian & Allen electrode steam boiler operated from a standard full-size control panel

Among domestic and industrial immersion heater elements are new 2-kW and 3-kW automatic elements for domestic purposes.

Belling & Co., Ltd. (Stand 51).—A full range of domestic electric cookers consists of a standard model designed for easy conversion from two to three plates and built to E.D.A. specifications, a streamlined de luxe model with inner glass door and large illuminated oven, the new "Baby Belling" cooker for the small kitchen, and a new table cooker. All cookers are now finished in white enamel with black hobs, instead of grey mottled, without extra charge. Examples of refractories, are also shown together with some interesting pressings.

Berry's Electric, Ltd. (Stand 50).—The theme of this display is the adaptability of Berry fires to any climate, and two maps show some of the fifty-three countries to which "Magicoal" fires have been supplied. Export models shown include the "Magiclog" fire No. 504, now made with translucent fuel on the same principle as the imitation coal models, and the new "A" models designed for the American market.

Best Products, Ltd. (Stand 40).—The company has for the present standardized on one type of electric kettle, a 3½-pint, 1,250-W model. Two sizes of both non-automatic and automatic safety device kettle elements are now in production, 1,250 W and 700 W. A new percolator for export has a thermal safety device and a two-position switch enabling coffee to be kept hot without further percolation or evaporation.

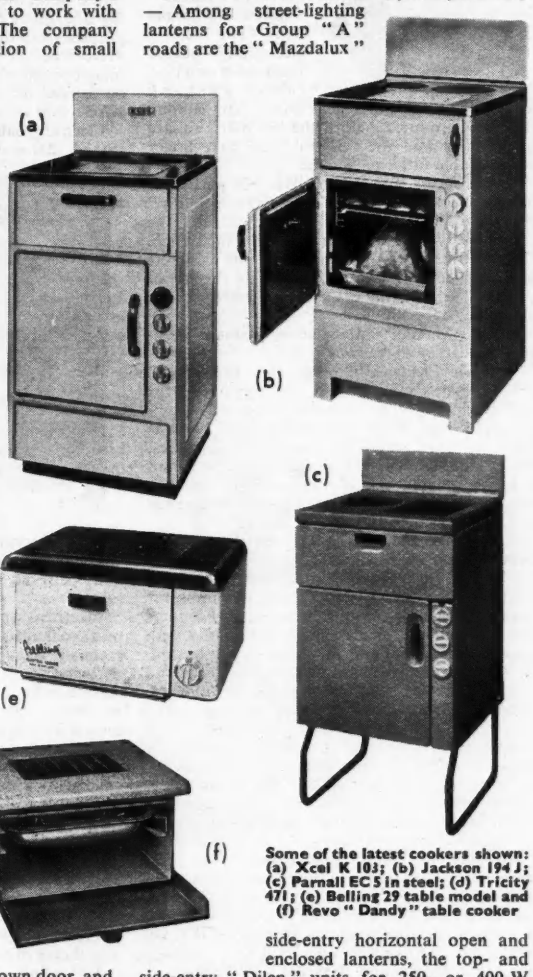
George Bray & Co., Ltd. (Stand 32).—Domestic and industrial immersion heaters accompany the various types of strip and ring heaters as applied to all kinds of domestic and industrial heating apparatus. The BEJ kettle element available with loadings of 1,000, 1,500 and 2,000 W is now in full production again with an improved cut-out. The company's "B" type connector is designed to work with the ejector type of cut-out. The company specializes in quantity production of small ceramic parts made to precision limits.

British Insulated Callender's Cables, Ltd. (Stand 10).—With typical examples of service and mains equipment and a prototype polyethylene service cable is a consumer's service unit adapted for multi-consumer distribution in flats and similar buildings: it embodies a simple conduit box, without main fuse, developed for rising main or distribution board connections where main fuses are centralized, together with a four-way fuse chamber. An all-insulated cut-out has wide facilities for alternative connections and provision for extension to form multiple-way units. Up-to-date jointing practice is exemplified in a straight joint for 33-kV underground mains cable.

British National Electrics, Ltd. (Stand 48).—The new C 49 cooker has a commodious hot-cupboard, a large oven (2,608 cu in.) with drop-down door, and an optional drawer unit in the base. The hinged hob is available with a grill boiler and either one or two hot-plates. The attractive finish is two-tone ivory with black hob and plinth.

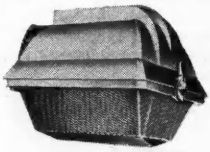
British Refrigeration Association (Stand 16).—A composite stand shows domestic refrigerators produced by British Ideal Patents & Furniture, Ltd., Frigidaire, Ltd., the General Electric Co., Ltd., the International Refrigerator Co., Ltd., Marco Refrigerators, Ltd., the Pressed Steel Co., Ltd., and L. Sterne & Co., Ltd.

British Thomson-Houston Co., Ltd. (Stand 15).—Among street-lighting lanterns for Group "A" roads are the "Mazdalux" side-entry horizontal open and enclosed lanterns, the top- and side-entry "Dilen" units for 250- or 400-W mercury vapour lamps, the side-entry "County" and "Crown," 300- or 500-W "Mazda" gas-filled lamps; and a lantern taking three 5-ft 80-W fluorescent lamps. The last-mentioned is of silicon-aluminium alloy construction and has a



Some of the latest cookers shown: (a) Xcel K 103; (b) Jackson 194 J; (c) Parnall EC 5 in steel; (d) Tricity 471; (e) Belling 29 table model and (f) Revo "Dandy" table cooker

translucent plastic cover which renders it dust-proof and weather-resistant. The design ensures that 97 per cent of the light is usefully employed.



"Mazdalux" horizontal enclosed street lighting lantern (B.T.H.)

Burco, Ltd. (Stand 54).—The "217" electrically-heated hand-operated cabinet washing machine and a porringer boiler are among the latest products. Both the "E 840" square wash-boiler and the "E 650" de luxe boiler are available in pastel shades.

Cable Covers, Ltd. (Stand 44).—Of particular interest is a scale model of the "Clough-Smith" cable plough, which cuts the trench, lays the cable, grouts it in concrete and refills the trench. Demonstrations are given of making concrete overhead poles in situ and there is a display of "Apex" self-locking cable covers, meter boards and other accessories.

Cable Makers' Association (Stand 8).—Electric cables of various types.

Chloride Electrical Storage Co., Ltd. (Stand 35).—Exhibits include "Exide" equipment for switch-tripping and supervisory control in sub-stations; a cut-away "Exide-Ironclad" cell as used on road vehicles, works trucks, cranes, mine locomotives and dockside trucks; and a typical Planté cell of the sealed-in type, as used for house lighting, telephones, emergency lighting and other duties.

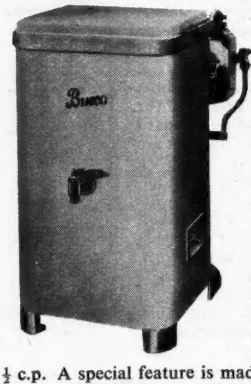
E. K. Cole, Ltd. (Stand 43).—In the tungsten field Ekco-Ensign Electric, Ltd., show their general service and high-wattage lamps, traction, rough-service and a large variety of lamps for special purposes. Other interesting products are "Plastalux" shades and a desk lamp with universal ball joint and luminous switch button. A wide range of 40-W 4-ft fluorescent fittings and control gear has been added to the 80-W range, which itself has been extended already. The new 2-ft 20-W lamps are also shown with appropriate control gear. Special exhibition and test units demonstrate the qualities of different lighting products in actual use. Thermovent heaters include floor-standing, inset, steel-cased industrial, and marine types. "Thermotubes" are shown in 2 to 12 ft lengths.

Dorman & Smith, Ltd. (Stand 11).—This company is showing a section panel of the main switchboard for the new House of Commons, a cubicle type unit with back of board switches; a new fused test prod incorporating the DS fused pin; prismatic and bulkhead lighting fittings; distribution boards; a Dorman T switch fuse and the new CSDU/2 shock-proof consumer unit with cartridge fuses. D S Plugs, Ltd., are exhibiting fused plugs and sockets, cooker control units and other accessories.

Eastbourne Electricity Supply (Stand 26).—An interesting collection of antique electrical apparatus, some fifty years old, is shown alongside modern counterparts.

Edison Swan Electric Co., Ltd. (Stand 25).—Besides "Royal Ediswan" lamps, "Escura" discharge lamps and fluorescent discharge tubes are types of the "London Minor" street lantern and a selection of reflector fittings for fluorescent tubes. With the latest batteries and accumulators for emergency lighting, traction and many other purposes are the latest 30-V, 2-circuit metal and valve types. "Tungar" battery chargers with independent circuits enable varying loads to be catered for in the most satisfactory manner. A selection of cables is also exhibited.

Electric Lamp Manufacturers' Association (Stand 24).—About 250 lamps representing more than 3,500 types available to-day are displayed. Of special interest are mercury-arc compact source



Burco 217 washing machine

lamps for film and television studio lighting; a proposed standard range of miners' lamps; and the 10-kW lighthouse lamp compared with a minute lamp of ½ c.p. A special feature is made of the new 2-ft 40-W and 20-W fluorescent lamps and the internally silvered 150-W spot lamps for display purposes.

Electrical Apparatus Co., Ltd. (Stand 12).—Of particular interest among house service pattern meters is the new "E.H.D." single-phase meter, designed specially for use in standard consumers' service units, but equally suitable for any other mounting. Polyphase meters and prepayment meters for single and two-part tariffs are shown, a special feature of the latter being the large capacity, contactor type switch with renewable silvered contacts. A new optical test set is of particular value when handling large numbers of meters. By means of this set a meter may be fully calibrated from full to 1/20 load to very close limits in less than six minutes. Examples of moving-coil and moving-iron industrial instruments include the "Motammeter" designed specifically for motor starters.

Electrical Association for Women (Stand 1).—The theme of this stand is "The E.A.W. Method—Education, Efficiency, Economy." Among charts displayed is a new one on "Transmission," showing how electricity is brought from the power station to the town, factory, village and farm. A new series of "Cheerful Rationing" cards emphasizes fuel economy and how to avoid the peak load.

Electrical Industries Benevolent Association (Stand 22).—By indicating the increased work which the E.I.B.A. has been doing for non-manual workers and their dependants in all the electrical industries, the need for extra voluntary support is made obvious.

Electroflo Meters Co., Ltd. (Stand 62).—Among instruments for boiler and turbine plant is a combustion indicator providing simultaneous indications of boiler steam flow and combustion air flow: this instrument is also used to measure feed water flow, tank level, CO_2 percentage, steam and feed water pressure, etc., any two such readings being combined on the one instrument. A diaphragm-operated draught gauge, a temperature indicator with multipoint switch and an electronic potentiometer are also exhibited, together with illustrations of boiler control installations.

Elexcel, Ltd. (Stand 38).—The highlight of the "Xcel" display is the cabinet cooker "K 108" in black and white or green and cream acid-resisting vitreous enamel. Hob equipment consists of one 8-in. and one 6½-in. boiling plate and a grill boiler. An alternative hob is available with 8-in. diameter boiling plate and grill boiler only. The side plug-in oven elements run at black heat to ensure long life. Thermostatic control is standard. The actual cooking space of the oven is 2,700 cu in. Two breakfast cookers finished in a combination of black and white acid-resisting vitreous enamel are also shown. Reflector fires include 1-kW and 2-kW models in highly-polished chromium plate with natural aluminium die-cast cheeks and an artistically designed 2-kW fire finished in silver-green or golden-bronze. The "Woolton" 2-kW imitation coal fire also has its two chromium-plated reflectors set in a silver-green or golden-bronze frame. Two attractively designed thermostatic irons have sole plates of chromium-plated cast-iron or polished aluminium.

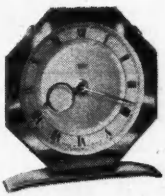
Enfield Cables, Ltd.—Though not participating in the official exhibition, this company has arranged a display in the ballroom of the Imperial Hotel, Devonshire Place, comprising a compression cable for 132-264 kV working, a 132-kV single-core joint, a 66-kV joint, 33-kV joints and sealing ends, tier type pole boxes, and the "Enfield" grid suspension wiring.

English Electric Co., Ltd. (Stand 4).—A new range of cookers in green and cream enamel includes both two- and three-plate types, the latter with one of the plates incorporating a quick boiling feature. A new 6·4-cu ft refrigerator has three shelves, an evaporator containing two ice-trays (producing 4 lb of ice in 40 cubes) and an anodized aluminium dessert tray of four pints capacity, with a four-pint glass chill tray underneath for holding meat. A plate-warmer of armour-plate glass, reflector fires, the "Ritemp" washing machine and a hot water circulator are also shown.

Falco Electrical Appliances, Ltd. (Stand 47).—The latest cookers include the No. 17 with a one-piece, removable box oven with rounded corners; the similar No. 15 cooker with a bottom drawer for kitchen utensils; and the "Junior" model. The company's heavy-duty range has 7 cu ft of oven space and two large rectangular boiling plates. A heavy-duty grill unit has a 220-sq in. or 400-sq in. griller, each with two three-heat switches so that part of the grilling area only need be used. A heat-controlled iron and a reflector fire are available.

Falk, Stadelmann & Co., Ltd. (Stand 58).—The new R 848 two-plate cooker meets the demand for a cooker of larger hob capacity than the existing R 647. The "Raydex" breakfast cooker follows the general cooker design, being of the plinth type with a black hob and base and optional finishes of pearl-grey mottled or self-colour cream enamel. A striking new coffee percolator of nickel-plated diecast aluminium has its body cast in one piece including the spout, the base forming the clamping plate for the element. Other exhibits are a streamlined aluminium toaster in two- or four-piece designs, 4-pint chromium plated electric kettles, thermostatically controlled irons in blue or cream finishes, the "Sunray" reflector fire, immersion heaters and water heaters.

(a)



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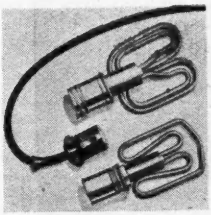


(c)

(a) Premier coffee percolator; (b) "Temco" No. 339 clock with peach melba glass, chromium base and black hands; (c) Bray "BEJ" kettle element with "B" type connector designed to work with ejector type cut-out

Ferranti, Ltd. (Stand 21).—In addition to electric clocks, radiant electric fires, water heaters, meters and instruments, there is the Ferranti-Jeans seed conditioner, which is capable of drying all types of seed with such variable characteristics as cocksfoot, timothy, rape or linseed, whilst still in the sack. Another interesting exhibit is a 50-kVA power factor correction condenser seen in use.

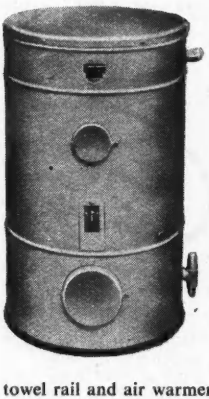
General Electric Co., Ltd. (Stand 3).—The new "DMH 51" 5-cu ft refrigerator has provision for ice making and storage of frozen foods, together with a "Salador" for keeping

salads fresh and a chilling compartment for meat and fish. In addition to the "DC 113" cooker, which made its first appearance last year, is the "Ovenmaster" conversion kit, by means of which certain manually controlled cookers can be converted to thermostatic control. Several of the fires shown incorporate scientifically designed chromium-plated dispersive reflectors. To complete the exhibit there are two water heaters (one UDB model and one for sink mounting), two street lighting lanterns, a range of "Osram" lamps and a selection of "Mutac" silent a.c. switches.

G.W.B. Electric Furnaces, Ltd. (Stand 29).—The main exhibit is the "Autolec" electrode steam boiler. This is used mainly for steam raising, but models are also available for water heating. The boiler is of great interest to the agricultural and dairy industries for supplying steam for sterilizing, pasteurizing, bottle and churn washing, etc. The unit is self-contained and automatic. Steam is raised within six or seven minutes. Models with loadings of from 30 to 1,000 kW, give 100 to 3,350 lb of steam per hour.

Hague & McKenzie, Ltd. (Stand 2).—New heavy-duty cooking utensils have been specially designed for use in hotels, hospitals, canteens, ships, etc. Possibility of leakage of pans at the handles has been overcome by the use of specially welded construction and every utensil also has specially strengthened sides.

Heatrae, Ltd. (Stand 45).—An electric water heater for small houses, flats and bungalows has a top element for small quantities of water and a bottom element for larger quantities. The water chamber is of monel metal. The "DOT" type, 1½-gal. water heater, the rectangular cistern type, and the "JET" unit are also shown. Other products are a flameproof gilled tube air warmer for use in hazardous positions, an oil heater, a small airing cupboard heater, a chromium warming plate, a combined towel rail and air warmer, an 8-kW semi-automatic water boiler for restaurants, and hospital sterilizers.



Heatrae electric water heater for small houses, flats and bungalows

Hoover, Ltd. (Stand 46).—Besides vacuum cleaners of further improved quality and fractional-h.p. motors, there are the compact new washing machine and the recently introduced range of electrical accessories, comprising plastic commutators, shaded-pole motors, toggle and slide switches.

Hotpoint Electric Appliance Co., Ltd. (Stand 5).—A new unit window ventilating fan and an electric cooker control unit so constructed as to obviate the use of ceramic material are shown for the first time. A special feature is made of a working model of the company's cabinet washing machine constructed in "Perspex" which shows the large water turbulence set up by the gyrator action. "Torribar" sheathed-wire boiling plates, domestic water heaters and industrial heaters are also displayed.

Jackson Electric Stove Co., Ltd. (Stand 27).—Maintenance troubles are minimized by the high proportion of interchangeable components employed in the range of "Cleanline" cookers. Apart from the 192J and 193J models, the 194J is now available for the home market. Whilst built to standard overall dimensions, it has exceptional oven capacity (2,734 cu in.). The two-tone ivory finish, hitherto reserved for export markets only, is now being offered on all models for the home market. Advance models in colours are also being shown. The No. 900 wash-boiler is displayed with the new white heat-resisting finish and chromium plated fittings An innovation is a scale disperser for minimizing scale deposits in water heaters.

Johnson & Phillips, Ltd. (Stand 49).—Special attention is drawn to the new aluminium sheathing for power cables. Installation bends and a complete joint are demonstrated.

W. Lucy & Co., Ltd. (Stand 28).—Fuse units, an l.v. lighting unit, maximum-demand indicators, rotary ammeter switches, l.v. metering current transformers, cut-outs and insulated neutral boxes are accompanied by photographs of l.v. substation switch and fuse gear.

Martindale Electric Co., Ltd. (Stand 41).—Demonstrations are given of the "Elevicon" system employing a vibrator unit for transforming d.c. to a.c., low d.c. to high d.c. or vice versa. It will operate at all d.c. voltages between 6 and 600 V and will deal with loads up to 5 kW at an efficiency of not less than 85 per cent. Its applications include fluorescent, neon and low-voltage lighting, battery charging, radio and television apparatus. Blowers are also shown in standard (¼-h.p. motor) and heavy-duty (1 h.p.) types with suction attachments for converting them into industrial vacuum cleaners. "Commstones" for grinding commutators and slip rings in position, a power-driven mica undercutting file and a pocket voltage tester for up to 600 V are also shown.

Metropolitan-Vickers Electrical Co., Ltd. (Stand 9).—Equipment for the supervision and control of maximum demand is designed to help consumers to keep their maximum demand to a certain level, in order to reduce the consumer's power costs and the system's peak loads. One device gives a signal or sheds load when the integrated demand is likely to exceed the given m.d. Another apparatus demon-

strated gives continuous indication of actual demand compared with "ideal" demand, and controls the load with a minimum of restriction. "Turbovisory" gear accurately indicates and records vital measurements on turbines. There is a model of the 15,000-kW gas turbine of the generating unit for the Stretford power station. Lamp exhibits are confined to commercial fluorescent lighting fittings of a semi-decorative character, but photographs show the latest lighting and industrial infra-red installations. A film strip illustrates electrical equipment for trolley-buses and methods of maintenance.

Moffats, Ltd. (Stand 56).—Models "42S," "43S" and "31 SG" cookers fitted with step-in base are shown in colour finishes. Model "42S" can also be seen in dapple grey.

Otter Controls, Ltd. (Stand 64).—A working model demonstrates a domestic peak control device, and a 3-kW water heater and a cooker are so arranged that when 1 kW or more of cooking load is switched on, the water heater is automatically switched off. A press-button type switch for water heaters switches off the electricity when the temperature reaches 160 deg F. New thermal switches and snap-action blanket thermostats can also be seen.

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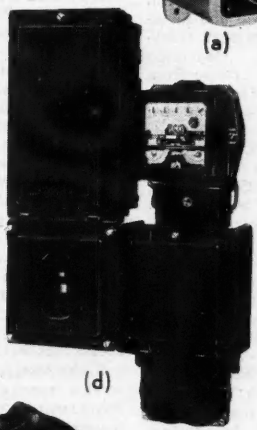
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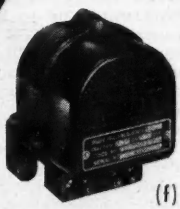
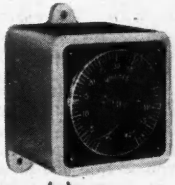

(f)

Meters and instruments on view:—(a) Venner process timer type PT3; (b) Weston S85 photometer; (c) E.A.C. type E.H.D. meter; (d) Siemens all-insulated E.D.A. consumer's service unit; (e) Metrovick load limiter; (f) New A.T.M. "Rythmatic" relay

Parnall (Yate), Ltd. (Stand 57).—The new range of cookers for the home market, the "E.C.5" and "E.C.6" series, are accompanied by the new "Silver Grill" breakfast cooker. The cookers are available in three finishes, synthetic heat-resisting enamel on aluminium panels, mottled grey vitreous enamel on sheet steel panels and white vitreous enamel on sheet steel panels. Alternative hobs are available either in cast aluminium, fluted and lustre finished, or in black vitreous enamelled steel.

Premier Electric Heaters, Ltd. (Stand 59).—In addition to "Laundwell" and "808" heat controlled irons, "Pylon" kettles and toasters, there can also be seen a coffee percolator and fires, including the "Carlton" with its novel smoke and flame effect.

Revo Electric Co., Ltd. (Stand 53).—The "Princess" cooker is available either with grill-boiler and boiling plate or with two boiling plates and a separate grill. Finishes include cream and green, all-grey and all-white. The new "Peerless" cooker for flats, etc., has an oven with plate-warming chamber alongside: there is a separate boiling plate in addition to a grill-boiler. The "Revomatic" automatic kettle and heat controlled iron, the "Dandy" table cooker and the "Electajug" are other new domestic appliances. The "Sol-Etern" lantern for street lighting uses only two 80-W tubular fluorescent lamps. With the "Trufolite" industrial fluorescent reflector is a new "Fullalite" open-ended fitting for use with 4-ft 40-W lamps.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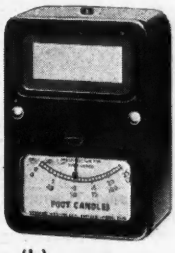

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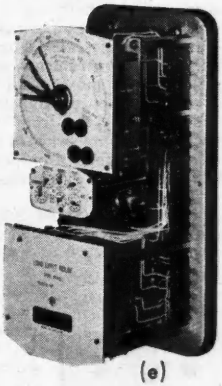
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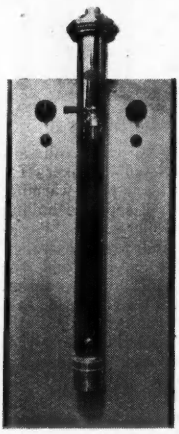
A. Reyrolle & Co., Ltd. (Stand 18).—A special feature is made of the recently developed pull-cap cartridge-fuses incorporating British Standard fuse-links for current-ratings of 5, 15, 30 and 60 A. Fuse distribution-boxes, a lighting switch-and-fuse distribution-box for

industrial use, a kitchen-control unit, combined switch-and-fuse units and an example of their application to control boards can also be seen. A demonstration-panel shows the performance of both a semi-enclosed fuse as compared with that of pull-cap cartridge-fuses, and the Reyrolle DS plug and socket, the plug of which is fitted with a fused pin. Completing the exhibit are two examples of HH metal-clad distribution switch-and-fuse gear one of these being a 1,600-A off-load isolator and the other a 200-A skeleton equipment showing the components. The fuses are fitted with the new class G.P. cartridge-fuse links.

Rheostatic Co., Ltd. (Stand 20).—This exhibit concentrates on thermostats for the control of domestic electric cooker ovens, domestic electric water heaters and electric space heating. Motorized valves and room thermostats for the control of central heating are also represented.

Sangamo Weston, Ltd. (Stand 30).—Meters include the " HMT " single-phase quarterly and prepayment patterns, polyphase two- and three-element meters, meter and instrument transformers, and portable test meters. Measuring instruments for both a.c. and d.c. range from 2-in. miniatures to 6-in. switchboard instruments, 6-in. and 12-in. scale laboratory sub-standard and standard instruments, multi-range test sets and sensitive moving-coil relays. The new " S 85 " pocket photometer has two ranges from 0 to 25 and from 0 to 125 ft-candles. Synchronous time switches for a wide variety of a.c. timing control purposes are also shown. With the type " G " synchronous motor is the " S 7 " clock unit.

Santon, Ltd. (Stand 55).—The company's automatic tea-making water boiler available in capacities up to 60 gal. is now fitted with a chromium-plated drip tray, and has a stoved cream finish: the wiring is also made more accessible. By a system of preheaters a new chromium-plated café type boiler can be arranged to provide quantities of boiling water normally supplied by heavy-duty apparatus. Special attention has been paid to ease of maintenance in hard-water areas. An industrial tea-making water boiler is designed for preheating 20 to 60 gal. of water (according to capacity of boiler) to 180 deg F, boosters being brought into circuit to bring this preheated water to boiling point at the rate of 50 to 200 gal. per hr. To meet present-day conditions various units incorporating change-over or selector switches allow only one appliance to be in circuit at a given time. Two forms of dual immersion heaters enable a normal household cylinder or tank to be converted to a dual-purpose unit by fitting only one unit on a 2¼-in. flange. A " Perspex " display unit shows complicated sequence switching.



Santon turbulating boiler specially designed for industrial canteens

Siemens Electric Lamps & Supplies, Ltd. (Stand 60).—" Sieray " fluorescent lamps, fittings and control gear include the new 20-W and 40-W 2-ft tubes. " Sieflash " tubes have been developed to meet the demand for a light source capable of producing a brief high-intensity flash.

A new all-insulated bakelite type E.D.A. consumer's service unit can have a 60-A earth leakage circuit breaker incorporated in place of the main switch. Another new consumer's service unit, type C.H.S., comprises three welded steel cases, which together form a single unit for flush mounting. Cables, earth leakage circuit breakers and electricity meters accompany photographs of street lighting installations.

Simplex Electric Co., Ltd. (Stand 6).—On this stand are examples of Simplex aluminium conduit as well as steel conduit and conduit fittings, switch and fuse gear, a new cooker control unit and a " Regent " switch-fuse of modern " cleanline " appearance with a die-cast alloy case. A " Perspex " demonstration model of a new " Creda " EV series domestic cooker shows general design, arrangement of components and outstanding features. There are also standard EV cookers in two-tone ivory and silver grey mottled vitreous enamel finish, an industrial hand dryer, irons, kettles, etc. Mersey cables and Lundberg switches and accessories include special purpose switches.

Smith Meters, Ltd. (Stand 37).—Among house service meters are the " AR " single-phase credit meters up to 100 A; " P " polyphase meters, 3-wire and 4-wire, up to 50 A direct wound; the " APR " single-phase shilling prepayment meter; and the " AFR " prepayment meter with and without fixed charge collector, suitable for single, double and triple coin operation.

South Wales Switchgear, Ltd. (Stand 13).—In addition to an air-insulated ring-main metal-clad unit and a voltage transformer, this company is displaying round and square wash-boilers, a home laundry unit (a square wash-boiler fitted with a hand-operated agitator and hand wringer) and an immersion heater. Various additions available for wash-boilers include a vitreous-enamel cover for the round wash-boilers, a hand-operated agitator unit and a fruit preserving basket for sterilizing purposes.

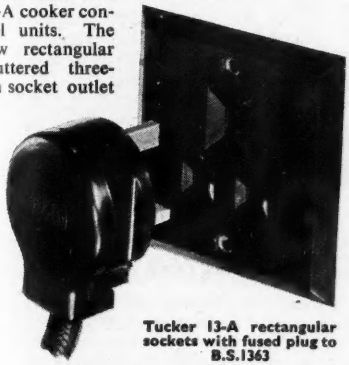
Sunvic Controls, Ltd. (Stand 42).—The " TQA " water heater thermostat is suitable for use either with combined immersion or storage heater or as a separate unit. Apart from the

normal " TYC " " Simmerstat " used for cooker hot-plate control there is the " TYK " for use in two-circuit hot-plates where control is required on one element only, the second element being in circuit only when the control knob is turned to full. Energy regulators, types " ERP " and " ERC," also employing the " Simmerstat " principle, form portable units suitable for numerous applications where control of the heat input is required. Hot-wire vacuum switches are useful where long life, silence in operation and reliability are essential.

Thorn Electrical Industries, Ltd. (Stand 52).—Special attention is drawn to the latest " Atlas " fluorescent lighting fittings and control gear, which includes the " Quickstart " unit. New possibilities in illumination are opened up by the 2-ft 40-W tube, which, like other sizes, is available in a new colour, peach. Photographs illustrate recent " Atlas " lighting installations.

T M.C.-Harwell (Sales), Ltd. (Stand 31).—Among " Temco " synchronous electric clocks are several new designs. Electrical accessories include 5-A switches; 5- and 15-A, 2- and 3-pin top-entry switch sockets; 5- and 15-A 3-pin front-entry screened switch sockets, surface and flush; and connectors.

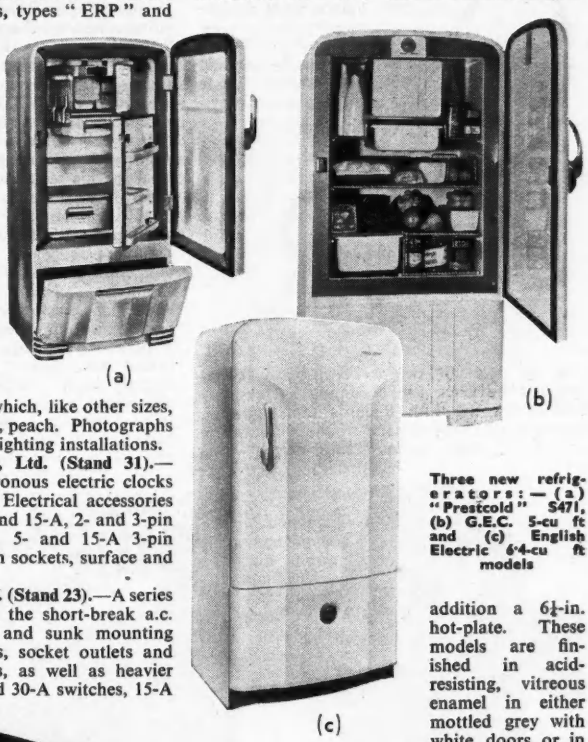
J. H. Tucker & Co., Ltd. (Stand 23).—A series of products incorporating the short-break a.c. principle include surface and sunk mounting domestic tumbler switches, socket outlets and d.p. switched lampholders, as well as heavier gear in the form of 15- and 30-A switches, 15-A switch-fuses and 30-A cooker control units. The new rectangular shuttered three-pin socket outlet



Tucker 13-A rectangular sockets with fused plug to B.S.1363

and fused plug to B.S.1363 are also exhibited, together with switches and their appropriate boxes to B.S.1299.

Tricity Cookers, Ltd. (Stand 14).—In addition to an improved " Junior " cooker two new models are displayed, the " 471 " with grill-boiler, 8-in. hot-plate and large high-efficiency oven, and the " 472," similar but including in addition a 6½-in. hot-plate. These models are finished in acid-resisting, vitreous enamel in either mottled grey with white doors or in ivory with a black hob and plinth.



Three new refrigerators: — (a) " Prestcold " S471, (b) G.E.C. 5-cu ft and (c) English Electric 6·4-cu ft models

Universal Boilers & Engineering Co., Ltd. (Stand 19).—The " Versco " 10-gal. standard type boiler now available in cream stove enamel finish as an alternative to galvanized is still proving popular for new housing schemes. Model " E " boiler has a full-circle, loose lid instead of a hinged " D " lid. The de luxe square boiler finished in cream has a vitreous-enamelled table top. The " Major " hand-operated, electrically-heated washing machine has the same attractive finish and appearance as the square boiler but is fitted with a removable wringer and a suction-tumbler agitator. The company's flush action electrically-operated washing machine is claimed to eliminate the wearing action which is experienced with the usual type agitator.

Vactric, Ltd. (Stand 39).—Exhibits are confined to the recently introduced " W 101 " cylindrical cleaner, the " R 45 " upright cleaner

and a new floor polisher with three revolving bristle brushes, set in triangular formation for easy access to corners.

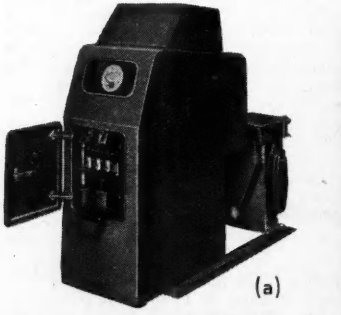
Vactric WI01 cleaner

Venner Time Switches, Ltd. (Stand 34).—Meters include single-phase watt-hour and dual-coin, two-part tariff types. Coin-operated switches are becoming increasingly popular for use with billiards table lighting. Besides a full range of hand-wound, electrically wound and synchronous motor-driven time switches in metal and bakelite boxes are various types of clocks to which they apply. Among process timers is the new " P.T.3 " model.

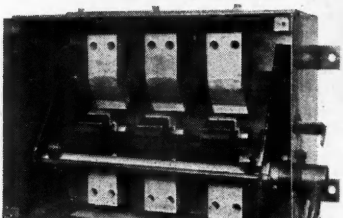
Westinghouse Brake & Signal Co., Ltd. (Stand 17).—Rectifier units and equipments for d.c. to a.c. change-over, battery chargers, constant voltage d.c. and a.c. equipments, and static single-phase to three-phase convertors are to be seen on this stand. Special constant-voltage battery chargers are shown while the " Stabilistor " provides constant voltage a.c. despite simultaneous variations in load and supply mains. Frequency-compensated models are also available. The static phase convertor is represented by a typical 4-kVA equipment.

Henry Wiggins & Co., Ltd. (Stand 63).—Among a wide range of alloys developed to meet specific requirements are the " Brightray " series, in grades suitable for resistors operating up to 1,150 deg C, " Ferry " for low-temperature resistances and thermocouples, " Inconel " for resistance to corrosion and oxidation at high temperatures, " JAE Metal " for magnetic shunts, the " Nilo " series for special magnetic and expansion properties, and " Thermometal " for thermostatic controls.

Yorkshire Switchgear & Engineering Co., Ltd. (Stand 65).—The " IVIO " metal-clad switch unit shown is oil immersed and is suitable for either e.h.v. and l.v. service, indoor or outdoor. It has been designed after extensive research for outdoor use in the most severe climates. The unit type " Y " industrial metal-clad switch-board which is manufactured by the associated company, the Electro Mechanical Manufacturing Co., Ltd., has been laboratory climatic tested for all services up to 660 V and busbar currents up to 1,000 A. It combines fuse-switches, switches, busbar units, contactor starters, etc. for installing either indoor or outdoor.



(a)



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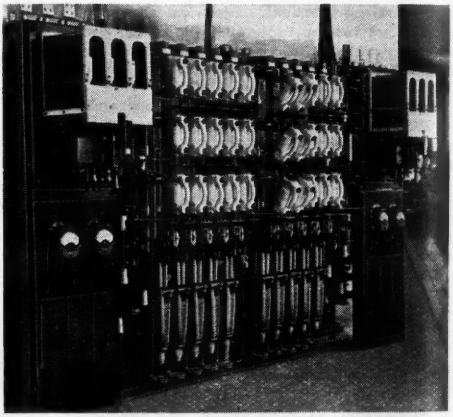

(b)

(a) IVI0 metal-clad switch unit (Yorkshire Switchgear & Engineering Co.); (b) Lucy, 3-phase 4-wire switch-board; (c) Reyrolle 1,600-A type HH isolator

COMMERCE and INDUSTRY

Fluorescent Lamp Price Reductions. Home Lighting Code.

THE Electric Lamp Manufacturers' Association announces further reductions in the price of fluorescent lamps (both warm white and daylight). As from 1st June the list price of 5-ft 80-watt lamps is reduced from 20s. plus 5s. 3d. purchase tax to 15s. 6d. plus 4s. purchase tax, and the 4-ft 40-watt lamps from 16s. 6d. plus 4s. 4d. purchase tax to 14s. plus 3s. 8d. purchase tax. New sizes of fluorescent lamps (warm white and daylight) which will be generally available from 1st July are 2-ft 40-watt lamps at 13s. plus 3s. 5d. purchase tax and 2-ft 20-watt lamps at 12s. 6d. plus 3s. 3d. purchase tax. The announcement appears in our advertisement pages to-day.

Thorn Electrical Industries, Ltd., also announces new prices as follows :—5-ft 80-W, 15s. 6d. plus 3s. 6d. purchase tax ; 4-ft 40-W, 14s. plus 3s. 2d. ; 2-ft 40-W and 3-ft 30-W, 12s. plus 2s. 8d.

Ekco-Ensign Electric Ltd., states that its prices are now :—5-ft 80-W, 15s. 6d. plus 3s. 10d. purchase tax ; 4-ft 40-W, 14s. plus 3s. 5d. ; 2-ft 40-W and 2-ft 20-W, 12s. 6d. plus 3s. 1d.

Gas Turbine School

The first of nine courses to be held this year at Britain's School of Gas Turbine Technology, Lutterworth, commenced on 31st May. Technicians from various commercial organizations, including Dominion representatives, are attending for three weeks' instruction in the industrial uses of the gas turbine. Responsibility for the School and its syllabus rests with Power Jets (Research & Development), Ltd., a company owned by the Ministry of Supply.

Transport Statistics

The second issue of " Transport Statistics," published by the British Transport Commission, covers the four weeks ended 22nd February, 1948. It contains financial, operating and other figures for British Railways, London Transport and Inland Waterways. Copies (price 1s.) may be ordered from the British Railways' Office, 71, Regent Street, W.1, and London Transport Enquiry Office, 55, Broadway, S.W.1.

House Lighting

There has just been issued in its final form the Code of Practice (C.P. 324.101) which deals with the provision of electric light in all types of dwellings. It describes the basic requirements for light distribution, makes recommendations for the placing of sources, prescribes the wattages of lamps for specific positions and the luminous efficiency desirable for fittings. Minimum general requirements for various kinds of rooms and supplementary facilities for the provision of additional local illumination, where necessary, are usefully set out in convenient form and an appendix explains a method of determining the sizes of lamps for fixed positions in living rooms. The Code is mainly concerned with the use of filament lamps, but reference is made to the installation of fluorescent tubes in appropriate circumstances. There is also brief comment on the requirements of larger houses, garages, greenhouses and to the modernization of installations in existing houses. Copies of the Code are obtainable for 2s. post free from the British Standards Institution, 24, Victoria Street, London, S.W.1.

Princess Elizabeth at Coventry

The products of Coventry's industries, assembled in an " Arena of Industry," were inspected by Princess Elizabeth on 22nd May, when she opened the reconstructed City Centre, Broadgate. One of the largest displays, that staged by the Telephone and Radio Works of the General Electric Co., Ltd., was mounted on a vehicle 60 ft long. The Princess was particularly interested in a miniature telephone exchange contained in a large model of a standard telephone-type relay.

Electronics Course

The London County Council has announced that from September it is to provide a new course to train young men in electronics and telecommunications engineering. About sixty students are expected to start the course at Norwood Technical College. Students must be over sixteen and they must have a school certificate with credits in English, mathematics and physics, or have reached an equivalent standard.

Electricity in Schools

The importance of electricity in education is stressed at the " New School " Exhibition now being held at the Royal Institute of British Architects, London. Particular attention is directed to the question of better lighting. This, it is pointed out, means not only more lighting but the avoidance of brightness intensity and glare. In a model schoolroom equipped by the Council of Industrial Design it is possible to see various different types of lighting fittings installed, each with its own special characteristics—a B.T.H. open type fitting consisting of an aluminium spinning with a 45 deg cut-off with upward light, a " Louverlux " recessed ceiling fitting, an " Ultralux " totally-enclosed glass spherical unit, and a " Tubalux " chalkboard fitting accommodating a 5-ft fluorescent tube (the last three fittings are all made by Troughton & Young, Ltd.).

With regard to heating, emphasis is laid on the necessity for adequate heat insulation, especially in relation to lowering the cost of

electrical methods. By taking appropriate precautions during the construction of the buildings fuel consumption can be reduced by as much as 40 per cent.

Among the special educational equipment for the model schoolroom are illuminated terrestrial and celestial globes (Georama), radio-amplifier and gramophone consoles and loudspeaker cabinet (Philips Electrical), a trolley gramophone and 15-W amplifier (Ultra Electric) and an AMP film strip and slide projector (distributed by the Educational Supply Association).

B.T.H. Summer School

The British Thomson-Houston Co., Ltd., has sent us a copy of the syllabus of the summer school in electrical engineering organized by the company's Education Department, which is being held in Rugby during the week ending 17th July next. The object in holding this school is to enable academic colleagues (holding professional posts or the equivalent) in the electrical engineering sphere to obtain at first hand a knowledge of the more important recent advances which have taken place in the industry. The informal exchange of views on matters concerning both education and engineering will also be of value. The proceedings will commence with dinner on Monday, 12th July, at the Grand Hotel, Rugby, and close after lunch on Friday, 16th July. A wide range of subjects in the field of electrical engineering will be discussed.

Reyrolle Conference

A conference of representatives of A. Reyrolle & Co., Ltd., was held on 25th, 26th and 27th May, at Hebburn, and was attended by area and district managers. The party was welcomed by Mr. Harry Towers, managing director, and the conference was conducted by Mr. L. E. Mold, director, and Mr. J. Bennett, contracts manager. The conference reviewed the work in hand, the volume of which is larger than ever before in the history of the company and also considered future developments. The opportunity was taken to inspect the increased production facilities now available, including the recent extensions to the factories. The accompanying picture taken during the conference includes Messrs. L. E. Mold, A. J. Bowron, J. Bennett, J. R. Cowie, N. V. Castling, W. A. A. Burgess, A. J. Coveney, L. Mellor, D. S. Parry, W. G. Martin, D. Kingsbury, J. R. Esson and H. C. Charlton.

Representatives of A. Reyrolle & Co., Ltd., at a conference recently held at Hebburn

Scottish Building Centre

An interesting display of glass, with a series of "Armourplate" glass demonstrations, is being held in the Scottish Building Centre, 425, Sauchiehall Street, Glasgow, C.2. The demonstrations, which are given by a technical representative of Pilkington Brothers, Ltd., consist of a brief description of the nature and characteristics of toughtened glass. The exhibition will continue until 25th June.

Electricity Board Headquarters

The Eastern Electricity Board is proposing to use as its new headquarters the central office of the old East Anglian Electric Supply Co. at Finborough, three miles from Stowmarket. The East Anglian Electric Supply Co. purchased the premises in 1936 and converted them for use as modern offices. In order to continue the work previously performed at Finborough by the East Anglian Co. and to provide for the administration of supply throughout Suffolk, a new sub-area headquarters will be established at Wherstead, Ipswich, which the Board is purchasing from Mr. Stuart Paul and which is admirably suited for modern office conditions. The house in Wherstead Park is immediately opposite the new Cliff Quay power station of the British Electricity Authority, and Ipswich thereby becomes not only an important centre of electricity generation but also the administrative centre for the Suffolk Sub-area.

The Area headquarters of the Yorkshire Electricity Board at Scarcroft was opened officially by Lord Citrine, chairman of the British Electricity Authority last Friday. In connection with this event an exhibition of agricultural, industrial and domestic equipment

has this week been open in the grounds. He said that the new electricity authority was trying to superimpose, without dislocation, on the existing industry a system which it believed to be better. A fine start had been made and it was his aim to make the organization happy and cohesive.

Proposed Colliery at Meaford

Test borings are to start soon in connection with a proposal by the National Coal Board to sink a pit at Meaford. It is estimated that the output would be sufficient to supply between 750,000 and 1,000,000 tons to the power station and provide a surplus for industrial and domestic purposes.

The 1951 Exhibition

An Advisory Council for the Exhibition of Science and Technology, a section of the 1951 Festival of Britain, has been appointed. The members are Sir Alan Barlow (chairman), Sir Wallace Akers, Sir Stanley Angwin, Sir Edward Appleton, Sir Alfred Egerton, Sir John Fryer, Sir William Halcrow, Professor Andrew Robertson, Sir Edward Salisbury and Sir Frank Smith. Mr. Ian Cox will act as secretary.

Trade Publications

The General Electric Co., Ltd., Magnet House, Kingsway, London, W.C.2.—Priced folder on the 80-lb storage type steam raiser. Technical description 385 of servo-electronic control for machine tools.

Johnson, Matthey & Co., Ltd., Hatton Garden, London, E.C.1.—Illustrated brochure outlining the products and services of the company.

The Tudor Accumulator Co., Ltd., 50, Grosvenor Gardens, London, S.W.1.—Catalogue of accumulators for marine purposes.

Bastian & Allen, Ltd., 11, Bedford Square, London, W.C.1.—Folder illustrating small industrial electrode steam boilers.

Plessey Works Extension

An ingenious employment of pre-cast concrete has enabled the Plessey Co., Ltd., Ilford, to increase its production area by approximately 32,000 sq ft. This extension is on the original flat roof of the principal multi-floor block of the factory. The only foundations able to carry the extra load were those around the outside of the building, necessitating the use of single span trusses. These were pre-cast reinforced concrete, cast on the roof of the existing building, and fixed in position by means of dowel holes cut into the building columns. The purlins were pre-cast in concrete, and complicated hips were cast in situ by means of shuttering. The sides were formed of 4½-in. dwarf walls, 3 ft high with continuous steel sashes above, right round the building. Asbestos sheeting was used for the roof, which is lined with Cellotex below the purlins, leaving an air space for thermal insulation. The lighting, which comprises three continuous rows of fluorescent tubes, consists of approximately 2,500 ft of troughing and 300 5-ft 80-W tubes, all independently switched.

Trade Announcements

All activities of the Service Division of **E.M.I. Sales & Service, Ltd.,** are now concentrated in the recently acquired factory premises at Greenford and all communications and inquiries in respect of service should be made to the company at Sheraton Works, Wadsworth Road, Greenford, Mdx. (telephone: Perivale 3344; telegrams: Emiservice, Greenford, Mdx.).

Lt. Cdr. C. H. Hayward, who already represents several British engineering manufacturing concerns, has been appointed by the **Electroplant Co.** (a subsidiary of G.P.U., Ltd.), as its supervisory engineer for Venezuela, Colombia, Ecuador, Central America from Panama to Mexico inclusive, Cuba, Dominican Republic, Haiti, Jamaica, Barbados, Bermuda, Bahamas, Trinidad, British and Netherlands Guiana and Netherlands West Indies.

The Kersons Manufacturing Co., Ltd., has appointed Mr. W. J. Murphy, of 10, Briarwood, Reedley Road, Westbury-on-Trym, Bristol, 9, as its agent for Bristol and the South Wales area from 1st June.

In view of the recent temporary closing of their Scottish factory, **E. K. Cole, Ltd.,** wish to make it clear that their service depot, at Duchess Road, Rutherglen, is not affected.

Philips Electrical, Ltd., has moved into new Edinburgh premises at 33, Castle Terrace (telephone: Edinburgh 22982).

The **British Aluminium Co.'s** Manchester branch office (North Western Area) has been moved to 46, Fountain Street, Manchester, 1. The telephone number remains the same.

Annual Holidays

Bruce Peebles & Co., Ltd., are closing their works for the Edinburgh Trades Holiday from 2nd to 12th July.

INFORMATION DEPARTMENT

THE extensive records of our Information Department enable us to reply to most queries, but occasionally we ask for our readers' assistance in tracing names and addresses not known to us. We should be glad to have such information regarding the makers of the following:—

"P. & R." fuse units.

General inquiries from readers relating to sources of electrical goods, makers' addresses, etc., are replied to by our Information Department through the post. Inquiries should be accompanied by a stamped addressed envelope.

National Register

THE annual general meeting of the National Register of Electrical Installation Contractors was held on Monday at the Institution of Electrical Engineers. Mr. P. V. Hunter, the chairman, said that the next year would be a somewhat critical one in the history of the Register, but he thought that the services it rendered would be appreciated and would be continued. The annual report of the Registration Board showed that 156 new certificates were issued during the year and 21 names were reinstated. Owing, however, to the removal from the Register for various reasons of 332 names, the total number at 31st December fell from 1,202 to 1,047.

During 1947 inspections were made of the work of 164 new applicants and by reason of the appointment of a second inspector it had been possible to resume the re-inspection of the work of certificate holders and 310 such inspections were carried out. In all about 1,000 or more installations of all descriptions were inspected and reported upon. For the benefit of those employing registered electrical contractors the Registration Board had inaugurated a comprehensive guarantee scheme covering the work of certificate holders.

Referring to the accounts, Mr. D. B. Irving, hon. treasurer, said that they had to draw on reserves, but when the British Electricity Authority made known its policy the Register would be able to see matters in a much clearer light. Mr. Hunter said that the fact that there was a deficit of £3,137 was due entirely to their progressive policy regarding advertising and publicity.

At the chairman's suggestion a resolution was passed to send a message to Mr. A. H. Dykes, until a year ago vice-chairman of the Register, expressing appreciation of the work he had carried out on its behalf. The meeting concluded with a vote of thanks to Mr. Hunter and Mr. E. A. Mills, vice-chairman.

Trade Marks

APPLICATION has been made for the registration of the following trade marks. Objections may be entered within a month from 26th May:—

Design No. 655,576, Class 9. Electrical appliances included in Class 9. No. 643,029, Class 11. Electric cookers for domestic use, electric fans, drying and airing cabinets, apparatus for heating and cooling the atmosphere of buildings, and immersion heaters. —Erinex, Ltd., High Street, Flore, Northants.

ERRES. No. 655,888, Class 9. Radio apparatus, sound amplifiers, domestic floor polishing machines, electric vacuum cleaners and flat-irons, and parts included in Class 9 of all such goods. No. 655,889, Class 11. Installations and apparatus for heating, electric fans, and refrigerators, and parts included in Class 11 of all such goods.—Naamlooze Vennootschap Handelsmaatschappij R. S. Stokvis & Zonen, 507 Westzeedijk, Rotterdam, Holland. Address for service: c/o Stanley, Popplewell & Francis, 88-90, Chancery Lane, London, W.C.2.

EMION. No. 657,291, Class 9. Scientific and electrical apparatus and instruments for imparting beneficial properties to substances, and parts of such apparatus and instruments, all being goods included in Class 9.—Emion Holdings, Ltd., 10-12, Copthall Avenue, London, E.C.2.

LOTUS. No. 659,192, Class 9. Electric vacuum cleaners and domestic electrical appliances included in Class 9.—Lotus Radio (1933), Ltd., 105-109, Judd Street, London, W.C.1.

CASLAM. No. 659,363, Class 9. Oxide powder magnets, and devices being compressed bodies comprising flakes of ferromagnetic material, all being goods for use in electrical apparatus and instruments and in wireless apparatus.—Plessey Co., Ltd., 56, Vicarage Lane, Ilford.

FOTOLAC. No. 659,502, Class 9. Instrument dials and indicators used on pressure gauges; and temperature measuring instruments, electrical instruments included in Class 9, and wave meter indicators for radio panels.—Rushton Organisation, Ltd., 173, Clarence Gate Gardens, Glentworth Street, London, N.W.1.

WILMAC. No. 657,768, Class 11. All goods included in Class 11.—William McGeoch & Co., Ltd., 28, West Campbell Street, Glasgow, C.2.

MICATHERM. No. B657,699, Class 17. Heat insulating materials and electrical insulating materials, all containing mica.—Mycalex Co., Ltd., Ashcroft Road, Cirencester.

SYNOBEL. No. 659,149, Class 17. Insulating varnishes.—Imperial Chemical Industries, Ltd., Wexham Road, Slough.

E.A.W. Branch Birthday

ON 26th May the Newcastle-upon-Tyne and District Branch of the Electrical Association for Women held its Coming of Age dinner at the Royal Station Hotel. The Branch Toast was proposed by Mrs. J. B. Alderson, M.A., J.P., and responded to by Councillor Miss Norah Balls, J.P. Dame Caroline Haslett, D.B.E., replied to the toast in her honour proposed by Mr. H. H. Mullens, chairman of the North Eastern Electricity Board. The toast of "our Guests" was proposed by Mrs. G. G. Mallinson, and the reply was made by Mr. R. W. Gregory, M.I.E.E.

London Tube Railway Extension.—An extension of the Central Line of the London Underground Railway to Hainault was opened on Monday. The new line is just under two miles long with three stations, Barkingside, Fairlop and Hainault, and at peak periods trains will run at six-minute intervals.

FINANCIAL SECTION

Company News. Stock Exchange Activities.

Reports and Dividends

Conversion of Securities.—The British Electricity Authority announces that the conversion date for the following having been declared by order of the Minister of Fuel and Power to be 1st June, holders of the said securities became instead on that date holders of British Electricity 3 per cent Guaranteed Stock, 1968-1973, calculated in accordance with the rates shown for each £1 nominal of the old securities. A first payment of six months' interest on the Electricity Stock will be made on 1st October next:—Chasetown & District Electricity Co., ordinary shares (£5); Craven Hydro-Electric Supply Co., 5 per cent debentures (£100 per £100 nominal), ordinary shares (£1 16s. 0d); Galloway Water Power Co., ordinary shares (£5 7s. 6d.); Hawes Electric Lighting Co., ordinary shares (£1 16s. 0d.); Shropshire, Worcestershire & Staffordshire Electric Power Co., " A " ordinary shares (£2 2s. 6d.).

W. T. Henley's Telegraph Works Co., Ltd., show a balance on trading account of £1,352,091, for the year ended 31st December last, as compared with £770,829 for the preceding year which with dividends and interest on investments of £114,032 makes £1,466,123. After providing £649,212 for United Kingdom taxation, £90,018 for depreciation, and paying directors' and auditors' fees, there is a net profit of £716,343 (against £331,553). From this the following allocations have been made:—Post-war contingencies reserve, £175,000; reserve for educational purposes, £20,000; provision for special depreciation and obsolescence, £60,000; provision for fluctuation in prices and materials, £67,000; and staff pensions, £100,000. It is proposed to pay a final dividend of 10 per cent and a cash bonus of 5 per cent on the ordinary stock, maintaining the distribution for the year at 20 per cent, and to carry forward £610,365 (against £413,822 brought in). Since the close of the year the authorized capital has been increased to £2,000,000 and an issue of 1,300,000 ordinary shares of 5s. each has been made at the price of 21s. per share.

The Telegraph Condenser Co., Ltd., held its annual meeting on 26th May, when Mr. W. H. McFadzean (chairman) said that the turnover increased substantially in 1947 as compared with 1946 and the output of condensers was greater than for any previous year. This was largely responsible for the profit on trading being almost doubled at £191,724. It had been the intention of the directors to recommend an increased distribution, but they agreed not to do so during the next twelve months. In overseas markets they had achieved a satisfactory spread of interests and during 1947 they exported condensers to forty-seven different countries. Sales for the first quarter of the current year showed an increase over the corresponding period of 1947, but owing to the difficulties in the radio industry the orders outstanding on their books were appreciably lower.

Crompton Parkinson, Ltd., have declared an interim dividend of 7½ per cent actual on the ordinary and " A " ordinary stock (unchanged). At an extraordinary meeting held on 28th May a resolution was passed increasing the authorized capital of the company by £850,000 to £2,850,000 by the creation of 3,400,000 " A " ordinary shares of 5s. each. As reported in our last issue, 1,025,932 " A " ordinary shares are being offered to ordinary and " A " ordinary stockholders in the proportion of one new share for every five ordinary or " A " ordinary stock units held.

Siemens Bros. & Co., Ltd., report a trading profit for the year ended 31st December last, including approximately £150,000 in respect of previous years, of £408,645, as compared with £117,966 for the preceding year which with income of £305,676 from subsidiaries and £33,503 from investments, makes £747,824. After providing for income tax, profits tax and depreciation there is a net profit of £344,751 (against £364,888), plus £45,000 from tax reserves not now required. It is proposed to allocate £135,000 for contingencies and to pay an ordinary dividend for the year of 7½ per cent (same). The balance carried forward is £702,320 (against £698,279 brought in).

The East African Power & Lighting Co., Ltd.—The Power Securities Corporation, Ltd., announces that application lists for the issue of 800,000 4 per cent cumulative preference shares of 20s. each in the East African Power & Lighting Co., Ltd., were closed on 25th May in both London and Nairobi. It is understood that the shares available in London at 20s. 6d. each were heavily over applied for, and preliminary estimates from Kenya indicate that the shares offered there were also over subscribed.

The Automatic Telephone & Electric Co., Ltd., reports a profit for 1947, including £20,868 revenue provisions no longer required, of £843,222, an increase of £386,280 as compared with 1946. A sum of £150,000 is charged to E.P.T. against final settlement of liabilities, profits tax for the year requires £80,000, directors' fees £1,255, depreciation £70,576, provision for research and contingent liabilities £200,000 and income tax £214,453, and £32,000 is placed to general reserve. The final ordinary dividend is 7 per cent, together with a cash bonus of 2½ per cent, again making 12½ per cent, less tax, for the year, while the distribution on the deferred stock and shares of 10 per cent,

plus a cash bonus of 2½ per cent, both less tax, is also unchanged. The balance carried forward is £193,797 (against £178,360 brought in).

In a statement circulated with the report Sir Alexander Roger, chairman, states that at the end of the year orders in hand represented a peak in the company's history although its principal customer, the Post Office, reduced its orders to a minimum to meet the Government's cut in capital expenditure and facilitate exports. At 1st January, 1948, orders from overseas represented slightly more than half the value of total orders in hand and of these overseas orders 64 per cent were for delivery to hard currency areas and the Union of South Africa.

Vactric, Ltd.—It is stated that the position of the company does not justify the payment of the preference dividend due on 1st June. Agreement has been reached in principle for the provision of substantial additional working capital. It is considered that the successful completion of the agreement, negotiations on the details of which have reached an advanced stage, will be of material benefit to the company.

H.T.A., Ltd., is recommending a dividend of 10 per cent for 1947, the same as for the previous year. Preliminary figures give the year's result as a net trading profit of £28,537 (against a net trading loss of £73,195 for 1946, before crediting £155,000 E.P.T. recoverable and £11,593 over-provision for tax).

British Rola, Ltd.—The directors have announced that the dividend on the 6½ per cent preference shares due on 30th June will not be paid. Preliminary accounts for the year ended 31st March last show a consolidated trading profit of £11,218 and after various provisions, including future taxation and amount irrecoverable on sale of subsidiary, there is a net loss to carry forward of £10,543.

Ward & Goldstone, Ltd., propose to pay a final dividend of 30 per cent, maintaining the distribution for the year at 50 per cent.

Lightfoot Refrigeration, Ltd., report a trading profit for 1947 of £73,685. The final ordinary dividend is 5 per cent, making 8 per cent for the year (unchanged).

The Atlas Electric & General Trust, Ltd., is resuming the payment of ordinary dividends with a distribution of 2 per cent for the year ended 31st March last, the first since 1932. There was a net profit for the year, after tax, of £173,687, compared with £171,297 for 1946-47.

Newman Industries, Ltd., is again paying a final dividend of 12½ per cent and a bonus of 2½ per cent, making a total of 22½ per cent for the year.

The Southern Areas Electric Corporation, Ltd., reports a net profit for 1947 of £27,482, as compared with £25,352 for 1946. The dividend for the year is maintained at 5½ per cent, and £18,533 is carried forward (against £14,751 brought in).

The Associated Equipment Co., Ltd., is paying an interim ordinary dividend of 5 per cent, tax free (same). The dividend will apply to allottees of shares in the recent acquisitions of Crossley Motors and the Maudslay Motor Co.

Hick, Hargreaves & Co., Ltd., with a final dividend of 8 per cent, are maintaining their distribution for the year at 10 per cent. The net profit for the year ended 31st March last was £83,800 (against £52,741).

The Lisbon Electric Tramways Co., Ltd., is paying a final dividend of 2½ per cent, tax free, again making 5 per cent for the year.

New Companies

Santon Developments, Ltd.—Registered 25th May. Capital, £1,000. Agents, Government contractors, manufacturers and dealers in dynamos, motors, lighting and heating plants, generators, etc. Directors: J. C. Sanders, J. F. Ford (nominated by Santon, Ltd.), E. Dickinson and J. N. Longley (nominated by Range Boilers, Ltd.). Secretary: K. R. Taylor. Registered office: Bridge Street, Stalybridge, Cheshire.

Chase Electric Co., Ltd.—Registered 22nd May. Capital, £2,000. Manufacturers of electric motors, electric control gear and all forms of electrical equipment for industrial and domestic use, etc. Directors: W. F. Cunningham, Mrs. Margaret A. G. Cunningham and A. L. Watson. Regd. office: 16, Sunbeam Road, Park Royal, N.W.10.

Meeting of Creditors

Hurry Heaters, Ltd., 86, New Street, Birmingham, 2.—A meeting of creditors will be held on 9th June at the Official Receiver's Office, Somerset House, 37, Temple Street, Birmingham, 2.

Bankruptcies

A. F. Howsley, electrical engineer, 25, Emesgate Lane, Silverdale, Lancs.—Receiving order made 26th May on debtor's own petition.

H. Evans, electrical factor, 16, Berners Street, London, W.1.—Application for discharge to be heard on 10th June at Bankruptcy Buildings, Carey Street, London, W.C.2.

Liquidations

Cosmos Manufacturing Co., Ltd., and Edison Swan Cables, Ltd.—Claims to the liquidator, Mr. D. Q. Holland, Crown House, Aldwych, London, W.C.2, by 21st June. These are members' voluntary windings-up and all creditors have been or will be paid in full.

Frank Murphy, Ltd.—Meetings at 23a, St. James's Street, London, S.W.1, on 9th June to receive an account of the winding-up by the joint liquidators, Messrs. C. L. Walker and R. Gordon Laing.

STOCKS AND SHARES

THE effect of the unexpected result of last week's South African election has worn off to some extent, but at first it produced an unsettled feeling that found reflection in markets in no way connected with South Africa or South African politics. During the past year or two very substantial sums have been put into South African securities, especially by investors who, seeing little to " go for " in this country, have ventured further afield in order to participate in the prosperity of South Africa. The blow aimed at confidence by the defeat of General Smuts has laid a check, temporarily at least, upon the popularity of South Africans, with the result that British industrials have come into renewed request. New issues continue to be taken with freedom. The giant Imperial Chemical Industries has announced its intention of raising £25 million new money. This will bring the capital to something over £60 million.

Company News

A notable event last week was Atlas Electric's return to the dividend list after sixteen years' absence. The 2 per cent distribution is in line with expectations entertained since the company became disembarrassed of the Montevideo subsidiary. There is no change in the price of the £1 shares at 15s. 6d. British Rola issues became a rather nominal market, the ordinary at 1s. 9d. and the 6½ per cent preference at 17s. 6d., after the announcement that the June dividend on the latter would not be paid. Last year the ordinary shares received 10 per cent, but a net loss is forecast for the period ended last March. The Vactric preference dividend is also being passed: the ordinary have fallen a florin to 7s. 6d. A 60 per cent increase in Newman Industries' profits, before tax, enables the company to maintain the distribution at 22½ per cent on increased capital. The 2s. shares are unchanged at 7s. 3d. Crompton Parkinsons are quoted, ex rights, at 25s. 6d. The new shares, offered to shareholders at 20s., started at 5s. 9d. premium. Hopkinsons rose 2s. 6d. to 5½.

Henley's Balance Sheet

Henley's Telegraph Works full accounts and balance sheet have set people comparing the position, in a nostalgic way, with that of 1936, when the company distributed a free 100 per cent share bonus, and followed it with a 20 per cent distribution, which has since been regularly maintained. On the capital side, total reserves and surplus have accumulated to a total of over £3 million, as compared with an issued ordinary capital of £1,300,000. From the earnings point of view, the dividend is shown to represent little more than one-fifth of the distributable profits of the group. Dividend limitation and the capital bonus tax preclude for the present the expectations which might formerly have been built on such a situation. The financial position encourages support, however, for the stock, now quoted at 25s. ex dividend for the 5s. units, the new shares (10s. paid) being 14s. 6d.

Automatic Telephone Results

On the basis of the distribution maintained at a total of 12½ per cent for 1947, Automatic Telephone & Electric £1 ordinary at 65s. pay £3 17s. 0d. per cent, and the £1 deferred at 61s. 3d., £4 1s. 9d. per cent. Total profits of £843,000 exceed last year's by as much as £386,000, despite the inclusion in last year's figure of £193,000 provisions no longer required, whereas only £21,000 is brought in this time under the same heading. Although total tax provisions take £177,000 more than before, the company is able to put £200,000 to the research and contingencies fund, to increase the general reserve, and still to raise the carry forward. Since the end of the year, the capital has been raised to £2,244,380 by February's issue of a million 4 per cent preference shares. Of the equity capital, £100,000 " A " deferred is held by B.I.C.

Capital Requirements

Crompton Parkinson's decision last month to finance the bulk of their current expansion by means of a capital issue was influenced by the consideration that to meet the whole requirements out of internal resources would mean restricting the flexibility of their policy. In the past week or two, other enterprises of the calibre of British Oxygen and Imperial Chemical Industries have referred in their annual reports to the question of raising fresh capital, at appropriate times, for similar purposes. Proposals of this sort draw an increasing amount of attention to the manner in which taxation, at its present level, coupled with the rise in the price of materials, is reducing the ability of industry to accumulate savings for development and working purposes on the pre-war scale.

Changes on the Month

The rise of 3s. in E.M.I., now 20s. 9d., is among the few changes of any particular consequence shown this time in our monthly price lists. American buying is reported to be behind it. Scophony, after being over 3s., finished the month 3d. lower at 2s. 3d., following official indication of an impending capital reconstruction. In the electrical equipment and engineering groups, the advances in, amongst others, A.E.I., Ever Ready, Henleys, Revo, and Crabtree go against declines in Lancashire Dynamo, Johnson & Phillips, Reyrolles and a few more. H.T.A. rose 2s. to £1, upon the excellent figures for last year. In the communications group, Cable & Wireless ordinary, at 201½, shed 3½ of the 26 points gained in April. The steady rise in Oriental Telephones to 54s. 6d.—a rise of 7s. 3d.—stands out. Calcutta Electrics are flat at 40s., and Calcutta Trams dropped to 31s. 6d. Rather surprisingly, Palestine Electrics at 33s. 9d. are 3s. 9d. higher.

ELECTRICAL INVESTMENTS

Past Month's Price Changes

Company	Dividend Previous	Dividend Last	Middle Price 31 May 1948	Month's Rise or Fall	Yield p.c. £	s.	d.
Overseas Electricity Companies							
Atlas Elec. ..	Nil	2	15/6	..	2	13	0
Calcutta Elec. ..	6†	6†	40/-	−6/6	3	0	0
Cawnpore Elec...	13	13	55/-	−½	4	14	6
EastAfricanPower	7	7	43/6	..	3	4	3
Jerusalem Elec...	5	6	21/-	+9d.	5	14	3
Madras Elec. ..	8	5	42/-	+1/6	2	7	8
Nigerian Elec. ..	12½	10	35/-	..	5	14	3
PalestineElec."A"	7†	7†	33/9	+⅛	4	2	10
Perak Hydro-elec.	Nil	Nil	16/-	+6d.	—		
Tokyo Elec. 6% .	—	—	50½	−1	—		
VictoriaFallsPower	19	19½	7 7/16	−1/16	2	12	5
WhitehallInv.Pref.	—	6	25/6	..	4	14	1
Equipment and Manufacturing							
Aron Elec. Ord...	10	15	56/3	..	5	6	9
Assoc. Brit. Eng.	12	12	37/6	—	6	8	4
Assoc.Elec.Ord...	15	15	76/3	+½	3	18	9
AutomaticTel.&El.	12½	12½	65/-	+⅛	3	17	0
Babcock & Wilcox	15	15	72/-	+6d.	4	3	4
Baldwin,H.J.(2/-)	10	20	9/6	..	4	4	2
British Aluminium	10	10	51/-	+1/-	3	18	6
B.I. Callender's..	—	6⅔	33/9	..	4	0	0
British Rola (2/-)	15	10	1/9	−1/-	—		
BritishThermostat (5/-)	23½	23½	25/-	+⅛	4	19	0
BritishVac.Cleaner (5/-)	20	20	15/6	−6 d.	6	9	0
Brush Ord.(5/-)..	—	—	7/6	..	—		
Burco (5/-) ..	35	35	26/3	..	6	13	4
ChlorideEl.Storage	20	20	97/6	−⅛	4	2	0
Cole, E. K. (5/-)..	20	22½	15/9	−9d.	7	2	10
Cossor, A. C. (5/-)	12½†	25	12/-	+1/6	—		
Crabtree (10/-) ..	17½	17½	43/6	+1/9	4	0	6
CromptonParkinson Ord. (5/-) ..	22½	22½	25/6xr	..	4	8	3
De La Rue (5/-)	45	50	47/-	+3/3	5	6	5
Decca (1/-) ..	112½	112½	26/3	+⅛	4	5	9
E.M.I. (10/-) ..	8	6	20/9	+3/-	2	17	10
Elec. Construction	12½	12½	52,6	..	4	15	3
Enfield Cable Ord.	7½	7½	36/3	..	4	2	9
English Electric .	10	10	48/9	..	4	2	0
Ericsson Tel. (5/-)	20†	20†	45/9	−⅛	2	3	8
Ever Ready (5/-)	40	40	39/6	+½	5	1	3
Falk Stadelmann	10	15	46/3	..	6	9	9
Ferranti Pref. ..	7	7	95/6	+6d.	3	19	0
G.E.C. Ord. ..	17½	17½	88/6	..	3	19	2
GeneralCables(5/-)	25	50	42/6	..	5	17	9
Greenwood&Batley	15	15	53/3	+3/3	5	12	9
H.T.A. (10/-) ..	10	10	20/-	+2/-	5	0	0
Heatrae (2/-) ..	12½	12½	5/-	+1/-	5	0	0
Henley's (5/-) ..	20	20	25/-	+1/-	4	0	0
Hopkinsons ..	22½	22½	5½	+½	4	7	10
Intl. Combustion (5/-)	37½	37½	42/6	−½	4	8	3
Johnson & Phillips	15	15	72/6	−½	4	2	10
LancashireDynamo	22½	22½	5⅝	−½	4	3	9

Company	Dividend Previous	Dividend Last	Middle Price 31 May 1948	Month's Rise or Fall	Yield p.c. £	s.	d.
Equipment and Manufacturing *(Continued)*							
Laurence,Scott(5/-)	12½	12½	13/-	+1/6	4	16	2
London Elec.Wire	7½	10	46/3	+⅛	4	6	6
Mather & Platt ..	11	11	54/9	+1/-	4	0	4
Metal Industries(B)	10	10	45/9	..	4	7	4
Mid. Elec. Mfg. ..	35	35	8½	+½	4	2	6
Murex	20	20	87/6	−½	4	11	4
Newman Ind.(2/-)	22½	22½	7/3	..	6	4	2
Plessey (5/-) ..	30	20	15/-	..	6	13	4
Parsons C. A. ..	12½	12½	63/9	..	3	18	5
Pye Deferred (5/-)	25	25	21/3	..	5	17	8
Radio & Tel. (2/-)	40	—	5/6	−1/-	—		
Revo (10/-) ..	20	27½	61/3	+⅛	4	9	0
Reyrolle ..	12½	12½	63/9	−2/-	3	18	5
Scophony (5/-) ..	—	—	2/3	−3d.	—		
Siemens Ord. ..	7½	7½	34/-	−1/-	4	8	3
Strand Elec. (5/-)	12½	17½	10/6	..	8	6	8
Switchgear&Cowans (5/-) ..	10	20	19/6	−6d.	5	2	7
T.C.C. (10/-) ..	15	15	37/6	..	4	0	0
T.C. & M. ..	10	10	50/-	+9d.	4	0	0
Telephone Mfg.(5/-)	9	9	10/6	+3d.	4	5	9
Thorn Elec. (5/-)	20	25	20/-	−⅛	6	5	0
Tube Investments	22½	25	6½	−½	4	3	2
Vactric (5/-) ..	Nil	Nil	7/6	−2/-	—		
Veritys (5/-) ..	2½	5	5/-	..	5	0	0
WalsallConduits(4/-)	55	70	61/-	+1/-	4	11	10
Ward & Goldstone (5/-)	50	50	60/-	..	4	3	4
Watford (2/-) ..	15	15	6/6	..	4	12	4
WestinghouseBrake	14	14	67/6	..	4	3	0
West, Allen (5/-)	10	10	11/-	..	4	11	0
Transport and Communications							
Anglo-Am. Tel.: Pref.	6	6*	120½	+3	4	19	7
Def.	1½	1½*	20½	..	7	6	4
Anglo-Portuguese	8	8	33/6	+1/6	4	15	7
Brit.Elec.Traction: Def. Ord. ..	50	50	1815	+10	2	15	0
Calcutta Trams..	10	Nil	31/6	−6/-	—		
Cape Elec. Trams	6	6	33/9	+1/-	3	11	0
Cable & Wireless: 5½ Pref. ..	5½	5½	127½	+2	4	6	3
Ord.	4	4	201½	−3½	1	19	9
CanadianMarconi$1	Nil	4 cts.	10/-	+6d.	—		
Globe Tel. & Tel.Ord.	5†	5†	47/-	+2/-	2	2	6
GreatNorthernTel. (£10)	18	15	25½	+1	5	17	8
Inter. Tel. & Tel.	Nil	Nil	26	+6	—		
Marconi-Marine..	7½	7½	34/6	..	4	7	4
Oriental Tel. Ord.	4	10	54/6	−7/3	3	13	6
Telephone Props.	6	6	19/6	+1/-	6	3	0
Tele. Rentals (5/-)	10	10	12/-	+9d.	4	3	4
T. Tilling ..	10	10	98/-	+6d.	2	1	8

* Dividend postponed.
† Dividends are paid free of Income Tax.

Telecommunications Research

Ministry of Supply Establishment at Great Malvern

ONE of the largest investigational organizations on the "air" side of the Ministry of Supply is the Telecommunications Research Establishment which, after moving from four different places, is now permanently situated at Great Malvern, Worcestershire. The scope of its activities, which is very wide, is perhaps not fully realized while the increasing applicability of ideas and devices evolved there to industry and commerce is certainly not understood.

It was for these reasons that senior officers of the R.A.F., Army, Navy, other Government Departments, the universities, distinguished scientists and prominent industrialists were invited to a well organized three-day "exhibition of work" last week, the public being admitted (for the first time) on the last day.

In his opening speech Mr. G. R. Strauss, Minister of Supply, explained that methods and appliances which might be useful to industry should be made known. The T.R.E. did not work in antagonism to, but wished to co-operate with, industry as a co-ordinating centre for research within its particular sphere. The resulting advantages were available to any body which could use them.

The establishment began in 1935 with six people; by 1938 there were 100 and now there were 2,000 in all (of whom 300 were physicists) including those on the associated airfield. The original function was to conduct research into, and devise methods of, communicating with and between aircraft and the identification of distant objects by radio means. While retaining its wartime responsibility for the development of equipment used by the R.A.F. and the Naval Air Arm, the Establishment is in addition responsible for improving aids to civil aviation as well as for certain radio and electronic research which is, in part, sponsored by the Department of Scientific and Industrial Research.

The establishment is organized into three main sections, which, severally, aim at making available equipment designed to perform specific functions and then, jointly, to improve its performance and reliability by more fundamental research concurrently carried out in collaboration with all sections.

Left: Target-arm view of 15-MVe electron synchrotron at Great Malvern

Above: Synchrotron control panels in adjacent room

The main objective of the Radar Department is to design, with a view to production, pulsed navigational aids for military and civil aircraft. Adaptations of some of these methods have proved their value in geographical surveying and

meteorological work. Paralleling the main objective is the devising of apparatus for servicing and maintenance by the user. Very often the instruments needed for checking performance and finding faults are considerably more complicated than the equipment they are intended to test.

The Physics Department is chiefly concerned with basic research into the properties of extremely short radio waves, infra-red radiation and certain electronic phenomena. It includes a theoretical physics group as well as a division that is responsible for fundamental measurements and the maintenance of electrical substandards used within the establishment.

Radar methods have been modified to serve as meteorological detectors, such as the microphone impactor for measuring drop size and a meter that measures the height of cloud-base above ground. The immediate infra-red problem is to devise sensitive detectors of "long" (5 to 15 μ) radiation. This work has already been of commercial value in the very quick detection of "hot spots" in brake linings and may ultimately be the means of obtaining heat pictures (in the dark) when ordinary procedure is impossible.

One example of electronic research is a magnetic d.c. amplifier, for purposes for which the valve amplifier is not so successful, which can detect 10^{-15} W at frequencies below 10 c/s and is primarily intended to work with low-impedance thermo-couples for industrial control. Another example is a cathode-ray "memory" unit for a mathematical computer which can add together 32 digit binary numbers in less than 360-millionths of a second. There are several servo-motor applications of industrial promise; one of them has been successfully demonstrated at Greenwich Observatory, enabling a large telescope to follow a star at night automatically without external assistance.

Assisting Atomic Energy Research

The work done in the electronics section (at the T.R.E.) of the Atomic Energy Research Establishment is of two categories. First there is the development of linear electron accelerators and synchrotrons; peak energies up to 25 MVe have been obtained and synchrotrons for from 140 to 300 MVe are being developed in conjunction with industrial firms. Secondly, there is the design of monitoring equipment for atomic piles and the devising of instruments for measuring radiation of differing forms, for gauging the health hazards of staff and for measuring radio-active tracers in medical and biological tests.

The Engineering Department is the link between research staff and production of the equipment on a commercial scale. Preliminary sketches and first models are made in local drawing offices and small workshops situated in each experimental block. The final model is made and full drawings are prepared by draughtsmen attached to the engineering unit which also compiles lists of component parts and spares for commercial production.

A major part of the engineering effort is directed to the investigation of new materials, finishes and constructional methods (which have greatly reduced the size and weight of some component parts) as well as to reliability tests under widely varying climatic conditions. Novel and some extreme measures have had to be devised in packaging for security in long-distance transit.

The valuable collection of centrimetric demonstration equipment used by the T.R.E. for training service and civilian personnel during the war has been preserved for use in the School of Electronics established by the Ministry of Supply. It was officially opened last week by Mr. J. Freeman, Parliamentary Secretary to the Ministry.

Two classes will be trained, each with an intake of about 15 yearly and both serving a five-year apprenticeship. One class, recruited locally by interview and aptitude tests, will become craftsmen instrument makers while the other class, selected by the Civil Service Commissioners by competitive examination, will be trained as professional engineers.

The scope of the School will later be extended to offer continuation instruction for scientific staff already within the service.

Burning Low-Grade Fuel

As an aid towards the burning of low-grade fuel on chain-grate stokers, a system has been developed by Mr. R. L. Hunt of Courtaulds, Ltd., for securing positive ignition control. Tests carried out on a 50,000-lb per hr water-tube boiler with a 14-ft grate are reported in *Fuel Efficiency News*. Steam nozzles are mounted on the lower end of the coal-feed regulating shutter so that the jets constantly retain their relative position to the incoming fuel bed. The operating steam pressure varies between 15 and 50 lb per sq in. and the steam consumption is about one per cent of the boiler output. The jets produce a vacuum over the front portion of the fuel bed, where air and gases entrained by the high velocity of the steam are projected into the burning gases above the active bed further back on the grate. The burning gases flow back to fill the vacuum caused by the jet of steam. Gases below the jet make direct contact with the surface of the incoming fuel to give immediate ignition, and those above the jet tend to increase the temperature of the ignition arch, thus further promoting ignition of the fuel by radiation. Alteration of the steam pressure to the jets varies the extent to which the hot gases are drawn towards the guillotine. Tests at various works of Courtaulds, Ltd., show that where boilers have been down-rated by 30 to 40 per cent through the use of low-grade fuels the system allows full output to be obtained from the same fuels.

ELECTRICITY SUPPLY

Shutdown in Derby Area. Waste-Gas Plant at Iron Works.

East Midlands. — SURGE CAUSES POWER FAILURE. — Parts of Derbyshire were without electricity for up to about an hour on 26th May. It was later stated by the British Electricity Authority that a surge on the system at 11.40 a.m. cut the Spondon and Derby stations adrift from the grid and left them with insufficient plant to carry the load. There was a considerable amount of load shedding in the Spondon area and a complete shutdown in the Derby district. Restoration began at 12.15 p.m. and was completed by 12.50 p.m. Supplies were also interrupted in an area of Norfolk when an overhead conductor snapped at Yaxham, the same village where a fault the previous Sunday preceded the widespread failure.

Liverpool. — SODIUM LIGHTING CHOSEN. — After considering the relative merits of fluorescent, sodium and blended sodium lighting, the Liverpool Street Lighting Committee has decided in favour of sodium for the central city streets. Mr. C. Cholerton Smith, the city lighting engineer, states that experience has shown that the public rapidly got over their prejudice against this form of light, which incidentally was the least costly.

Northern Ireland.—ELECTRICITY BILL.—Nearly 100 amendments have been put down for the Committee stage of the Northern Ireland Electricity Bill. The most controversial point relates to the composition of the Joint Committee, which will be responsible for the co-ordination and improvement of generation. Under the Bill, the Committee will consist of the chief electrical engineer of Belfast Corporation, the chief engineer of the Electricity Board for Northern Ireland, and a chairman appointed by the Minister, but M.P.s have been pressing for an increase in the number of members. While remaining adamant on the size of the committee, the Government will seek to meet back-bench views by proposing a change in its functions by putting responsibility for the preparation of development schemes on the Ministry of Commerce.

Scotland. — POWER "EXPORTS." — When the question of large blocks of electric power going outside the Highlands was discussed at the annual meeting in Inverness of the Local Authorities Hydro-Electric General Committee it was reported that the Committee had had a frank talk with the Hydro-Electric Board. Mr. Thomas Johnston, chairman of the Board, had stated that the Board was being pressed to state its charges for large blocks of power to industrial consumers. It was impossible to estimate what the costs of production would be by the end of 1949. If the Board gave large organizations power at less than cost price then it would be no longer possible to subsidize distribution in isolated parts of the country. It was the duty of the Board to restore the population and give facilities for small industries in the Highlands. The Committee was assured by the Board, it was stated, that if it had large users in the Highlands less power would be "exported from the system."

Sheffield.—ELECTRICITY FROM WASTE GASES.—A 1,000-kW turbo-alternator run on waste blast furnace gas was started up by Lord Citrine, chairman of the British Electricity Authority, at the works of the Renishaw Iron Works, near Sheffield, on 26th May. Electricity is generated at 6·6 kV, three-phase, 50 cycles, and stepped up to 11 kV for delivery into the transmission system of the East Midlands Electricity Board. Renishaw Iron Works is 28 miles from the Spondon generating station of the former Derbyshire & Nottinghamshire Electric Power Co., with which the agreement to purchase the energy was originally made. It is estimated that the Board will take 7½ million kWh annually from the new plant, saving more than 5,000 tons of coal a year.

Lord Citrine said unless means could be found of spreading the load more evenly over the twenty-four hours of the day the continuance of load shedding seemed certain. Despite restrictions the load was steadily increasing, and the co-operation of the public in the more economic use of electricity, and the staggering of hours of work, particularly in the winter months, were vital to the maintenance of supplies.

Referring to the recent serious breakdown of supplies in various parts of the country, he regretted the suggestion that the B.E.A. had gambled on the weather in order to win credit for nationalization. The implication was that some instructions had been given to the engineers by the Authority, which had caused them to depart from their usual caution, which he utterly denied. Since nationalization no alteration had been made in the system of control and operation, nor had any change in the instructions taken place. Human errors were expected in any organization, and he was far from alleging that these had been entirely absent, but it was disheartening to men who were striving to give the public the best service of which they were capable to have ascribed to them motives of an ulterior kind.

West Riding.—REWIRING OF HOSPITAL.—The County Council is recommended to have the electrical installation at the Scalebor Park Mental Hospital rewired at a cost of £6,000.

Workington.—OVERHEAD LINE.—The British Electricity Authority is to apply to the Ministry of Fuel and Power for consent to erection of an overhead line from Stainburn to Winscales.

NEW PATENTS

Electrical Specifications Recently Published

The numbers under which the specifications will be printed and abridged are given in parentheses. Copies of any specification (1s. each) may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2.

1943

PYE, Ltd., and W. Jones.—"Electric remote control or indicating systems." 6775. 29th April, 1943. (601655.)

1944

Marconi's Wireless Telegraph Co., Ltd.—"Parabolic antenna system for radio locator." 4969. 16th October, 1942. (601660.)

Standard Telephones & Cables, Ltd.—"Direction and distance indicating system employing electromagnetic waves." 10491. 28th February, 1941. (601725.)

Linde Air Products Co.—"Electrical control systems." 12347. 9th September, 1943. (601664.)

J. F. O'Brien and J. B. Cataldo.—"Means for controlling the interconnection of two d.c. electric sources." 20735. 25th October, 1944. (601669.)

W. J. Streader, A. Tate and A. E. Tate.—"Method and apparatus for attaching connections to stranded cables." 21611. 3rd November, 1944. (601670.)

Standard Telephones & Cables, Ltd.—"Radio navigation systems." 25832. 26th January, 1944. (601672.)

1945

Applications Mécaniques et Electrotechniques Aplec Soc. Anon.—"Means for regulation of speed of electric motors." 251. 11th December, 1943. (601673.)

W. C. Holmes & Co., Ltd., E. M. Lake, W. Sykes and T. Thomson.—"Electric precipitators." 666. 8th January, 1945. (601728.)

Landis & Gyr. Soc. Anon.—"Electric motor protection switch." 3573. 21st February, 1944. (601729.)

Standard Telephones & Cables, Ltd.—"Telecommunication systems." 5241. 21st April, 1944. (601906.)

"Arrangements for selecting and shaping electric pulses." 30042. 19th August, 1944. (601792.)

Nineteen Hundred Corporation.—"Drive mechanism for electric time switches" and "Electric control systems for appliances such as washing machines." 7738/9. 14th October, 1944. (601681/2.)

R. Rouat.—"Electric baths for heat treatment and for light treatment." 8041. 31st August, 1943. (601730.)

British Thomson-Houston Co., Ltd. (General Electric Co.).—"Luminescent materials." 17539. 10th July, 1945. (601697.)

Quartz & Silice.—"Electric furnace with carbon resistances." 18413. 26th July, 1944. (601735.)

Okonite-Callender Cable Co., Inc.—"Electric cables." 25935. 6th October, 1944. (601836.)

British Thomson-Houston Co., Ltd.—"Electric switches having arc-rupturing devices." 25941/2. 10th and 14th October, 1944. (601838/9. "Current limiting fuses." 26407. 17th October, 1944. (601884.)

O. A. McDowell.—"Thermostatically controlled electric water heaters." 25953. 5th October, 1945. (601843.)

G. R. Shepherd (Westinghouse Electric International Co.).—"Electric circuit breakers and trip devices therefor." 25972. 6th January, 1944. (Divided out of 574116.) (601844.)

Westinghouse Electric International Co.—"Electromagnetic control apparatus, particularly contactors." 25973. 12th October, 1944. (601845.)

Standard Telephones & Cables, Ltd., and B. B. Jacobsen.—"Thermionic valve arrangements for coupling balanced and unbalanced electric circuits." 25985. 5th October, 1945. (601848.)

Standard Telephones & Cables, Ltd., and E. F. Bates.—"Telephone systems." 25986. 5th October, 1945. (601849.)

Aktiebolaget Surte Glasbruk.—"Electrically-heated glass-melting furnaces." 26221. 20th November, 1944. (601851.)

Pye, Ltd., and D. I. Lawson.—"Applicator for radio frequency dielectric heating." 26251. 9th October, 1945. (601855.)

G. M. Baigent.—"Time-controlled electric switches." 26254. 9th October, 1945. (601856.)

F. H. Bull.—"Electrically-heated hair curlers." 26261. 9th October, 1945. (601857.)

Automatic Electric Laboratories, Inc.—"Electromagnetic relays." 26278. 9th October, 1944. (601861.)

Philips Lamps, Ltd.—"Formation of anodes in current-converting tubes." "Electric discharge tubes" and "Blocking-layer cell units." 26310/2. 27th July, 25th June and 17th July, 1940, respectively. (601870/2.)

Compagnie de Produits Chimiques et Electro-Metallurgiques Alais, Froges et Carmargue.—"Soderberg continuous anodes." 26316. 10th October, 1944. (601873.)

Welwyn Electrical Laboratories, Ltd., and P. Denes.—"Electric bridge circuits for measuring resistances." 26361. 9th October, 1945. (601877.)

C. H. Parsons, Ltd., and G. B. Handley.—"Lever-operated electric switches." 26396. 10th October, 1945. (601882.)

Siemens Bros. & Co., Ltd., and E. J. Gachet.—"Contact arrangements for electric switching devices." 26454. 10th October, 1945. (601892.)

Maschinenfabrik Oerlikon.—"Diaphragms for electrolyzers" and "Gas-blast electric circuit breakers." 26605/6. 22nd August, 1945, and 6th November, 1944. (601774/5.)

Londex, Ltd., and A. P. Besson.—"Electric flashing devices." 26612. 11th October, 1945. (601776.)

Benjamin Electric, Ltd., L. R. Kavanagh and J. J. Fenn.—"Lighting fittings for linear light sources." 27393. 18th October, 1945. (601898.)

British Thomson-Houston Co., Ltd., and W. S. Melville.—"Construction for thermionic valve apparatus." 29680. 7th November, 1945. (601791.)

Marconi's Wireless Telegraph Co., Ltd.—"Multichannel communication system" and "Manufacture of luminescent screens." 31540 and 33084. 1st July, 1944, and 19th December, 1941. (601937 and 601931.)

English Electric Co., Ltd., and D. L. Smart.—"Ignition apparatus for electric discharge devices." 31738. 24th November, 1945. (601933.)

R. D. Clover.—"Electric battery lamps." 31922. 27th November, 1945. (601935.)

Chloride Electrical Storage Co., Ltd., and H. J. Hampton.—"Separators for lead acid accumulators." 33296. 10th December, 1945. (601804.)

General Electric Co., Ltd., and J. T. Caldwell.—"Electromagnetic contactors and other switches with high-speed contacts." 33648. 12th December, 1945. (601808.)

Metropolitan-Vickers Electrical Co., Ltd., and A. Mandl.—"Fluorescent electric lighting." 33651. 12th December, 1945. (601809.)

F. H. Schofield.—"Indicating arrangements for disappearing-filament pyrometers." 34349. 18th December, 1945. (601940.)

General Electric Co., Ltd., and E. J. Steadman.—"Control of alternating current electric supply circuits." 35307. 31st December, 1945. (601811.)

1946

W. Sanders & Co. (Wednesbury), Ltd., and E. B. Manion.—"Contact making means for fuses of the cartridge link type" and "Holders for fuses of the cartridge link type." 4438/9. 13th February, 1946. (601941/2.)

Standard Telephones & Cables, Ltd.—"Key-sender for telecommunication systems." 14066. 2nd March, 1945. (Divided out of 601906.) (Convention date not granted.) (601947.)

Line Equipment, Ltd., P. W. Laverick, R. E. Cranston and H. P. Jackson.—"Fusible electric cut-outs." 16003. 27th May, 1946. (601717.)

M. I. Brodribb.—"Starting device for electric fluorescent lamps 17183. 12th June, 1945. (601720.)

Philips Lamps, Ltd.—"Cathode-ray tubes." 22919. 13th March, 1940. (601948.)

British Thomson-Houston Co., Ltd.—"Metal filament coiling apparatus." 23006/7. 1st August, 1945. (601949/50.)

CONTRACT INFORMATION

Accepted Tenders and Prospective Electrical Work

Contracts Open

Where "Contracts Open" are advertised in our "Official Notices" section the date of the issue is given in parentheses.

Anglesey.—28th June. Education Committee. Electrical installations in twenty-one schools. (See this issue.)

Angus.—28th June. County Council. Electrical work, Arbroath High School. Specification from James McGregor, County Buildings, Forfar.

Argentina.—BUENOS AIRES.—Department of Water and Electric Power.—15th June. Meters and instrument transformers.

30th July. Supply and erection of turbo-alternators, pressure pipe line, etc., at the Agua Negra dam, Province of La Rioja. The plant comprises two Pelton wheels, coupled to three-phase, 50-cycle, 6,600-V alternators. The tender also includes a welded steel pressure pipe line, valves, switchboard, overhead travelling crane, etc. Tenderers are to prepare designs for the power station building which will be built by the administration or put out to contract.

National Oilfields Department.—15th June. Electric motors. 22nd June. Welding sets. 14th July. Deep-well pumps. 15th July. Magnetometers.

Edinburgh.—12th June. Corporation. Electric lighting and power and call system installation, Eastern General Hospital, maternity block extension. Specifications, etc., from city architect.

South Africa—JOHANNESBURG.—Railways and Harbours. 29th July. Electrically heated horizontal box type furnace suitable for carburizing and general heat treatment of steel. *

Spain.—SEVILLE.—Compania Sevillana de Electricidad. 10,000-kW turbine, 18,200-kVA generator, 18,200-kVA transformer, switches and measuring instruments for a hydro-electric scheme. Manufacturers should communicate direct with the Seville firm and notify the Export Promotion Department of the Board of Trade (reference 33566/48) of any action taken.

* Specifications may be inspected at the Export Promotion Department, Thames House North, Millbank, S.W.1.

Orders Placed

Cumberland.—County Council. Accepted. Telephone system extensions at the Council Offices (£4,024).—Automatic Telephone & Electric Co.

Luton.—Corporation. Accepted. Electrical installation at the County Secondary Modern School, Chaul End.—Alpha Manufacturing & Electrical Co.

Contracts in Prospect

Particulars of new works and building schemes for the use of electrical installation contractors and traders. Publication in this section is no guarantee that electrical work is definitely included. Alleged inaccuracies should be reported to the Editors.

Aberdeen.—School, Kaimhill (£36,315); city architect.

Blackburn.—Works, Preston Old Road, for Scapa Dryers, Ltd.; W. Greenwood, architect, 11, Richmond Terrace.

Blyth.—New factory for Chrome Service, Ltd., South Shields.

Bramhall.—Primary school and nursery, Nevill Road (£71,810); E. M. Parkes, county architect, The Castle, Chester.

Bromsgrove.—Houses (86), Wythall, for R.D.C.; H. T. W. Gough, architect, 45, Newhall Street, Birmingham.

Buckinghamshire.—Primary schools, Western House, Cippenham, and Totteridge, High Wycombe; county architect, Aylesbury.

Chatham.—Houses (70), Wayfield estate; borough surveyor, Town Hall.

Chesterfield.—Central civic restaurant, New Beetwell Street (£12,200); W. S. Wilson, borough surveyor.

Chorlton-upon-Medlock.—Extensions to jute factory; W. Telford Gunson & Son, architects, 10, Marsden Street, Manchester, 2.

Coventry.—Five blocks of commercial buildings (central reconstruction scheme) and block of 3-storey flats at Allesley; D. E. E. Gibson, city architect, 1a, Warwick Row.

Cradley Heath.—Extensions to works; Samuel Woodhouse & Sons, Eagle Chain Works.

Cumberland.—Secondary schools at Brampton and Kells, and junior and infants' school at Kells; J. H. Haughan, architect, 4, Alfred Street North, Carlisle.

Darlington.—Premises for the deep-freezing of fruit and vegetables; Edwards Brothers, wholesale fruiterers, Houndgate, Darlington.

Dover.—Permanent houses (40), Buckland Valley and Green Lane Farm estates (£48,794); J. J. Jagger & Co., Ltd., builders, Halfway Street, Sidcup.

Droitwich.—Factory, Union Lane; Waldor Tool & Gauge Co., Ltd.

Dumfries.—Isolation wing (wards, operating theatre and waiting room) and ante-natal clinic (£35,000), for Cresswell Counties Maternity Hospital; superintendent.

Gateshead.—School and nursery school in Southend Road; chief architect, Municipal Buildings.

Gosport.—Junior school, Bridgemary, for Hampshire C.C.; S. Low, county architect, The Castle, Winchester.

Brick houses (50), Bridgemary and Woodcot estates; E. Addenbrooke, town clerk.

Great Eccleston.—Extensions to Elswick Sanatorium (£403,000) for Lancs. Tuberculosis Committee; G. Noel Hill, county architect, County Offices, Preston.

Guildford.—Staff accommodation at St. Luke's Hospital; J. Harrison, county architect, Kingston-on-Thames.

Hemel Hempstead.—Model dairy farm, etc., Featherbed Lane, for Chipperfield Estates, Ltd.; W. Thompson, architect, 14, Dunstable Street, Ampthill, Beds.

Howdon-on-Tyne.—Offices for the Cookson Lead & Antimony Co., Ltd.; W. Norman, builder, West Lane, Chester-le-Street.

Hull.—Factory, Reform Street Industrial Estate; Brown Bros., Ltd., 22, Great Eastern Street, E.C.2.

Hulme.—Extensions to works, Chester Street, for A. Brookes & Son, Ltd.; Major R. Bull, architect, 73, High Street, Cheadle, Cheshire.

Jarrow.—Factory for the Disabled Persons Employment Corporation; C. S. Errington, architect, 46, Grainger Street, Newcastle.

Keighley.—Boys' grammar school, four secondary schools and secondary technical school (£2,000,000); E. J. Felgate, borough architect, 26, College Street.

Leeds.—Factory, New Lane and Fleece Lane; Spensal Screw & Bolt Co., Ltd., Wilson Place.

Littlehampton.—Married quarters for R.N. personnel; Civil Engineer in Chief's Dept., Chamberlain Way, Pinner.

Macclesfield.—Two factories and garden village at Hurdsfield, for Halle's, Ltd., gown manufacturers, Park Green; secretary.

Manchester.—Extensions to works for Morris & Yeoman (Printers), Ltd.; Pendleton & Dickinson, architects, 16, Brazennose Street.

Newcastle-on-Tyne.—Canteen at Montagu Colliery for the National Coal Board; J. W. Vickers, builder, Lemington-on-Tyne.

Northampton.—Model bakery, Dallington Fields estate; W. Q. & T. R. Adams, Ltd., 212, Kettering Road.

Northumberland.—Renewal of the electrical installation at Duke's School, Alnwick; county architect, County Hall, Newcastle-on-Tyne.

Nottingham.—Extensions to works; William Allen & Co., Ltd., Anchor Works, Lower Parliament Street.

Oldham.—Public wash-house, Waterhead; A. L. Hobson, borough engineer, 75, Union Street.

Rainham.—School for Essex C.C.; Fairweather & Jordan, architects, 28, Wigmore Street, W.1.

Rotherham.—Schools and nursery at Broom Valley; E. J. Manson, borough engineer, Municipal Buildings.

Scarborough.—Block of flats, Westwood Gardens, for A. Moore & Sons; Alderson & Allen, architects, St. Nicholas Street.

Sherburn Hill.—Pithead baths for the National Miners' Joint Welfare Council; G. Bailey, Ltd., builders, King Street, South Shields.

Southport.—Factory, Crowland Street; D. G. Todd & Co., Ltd., Shakespeare Street.

Stockton-on-Tees.—Sauce factory, Stockton Road, for the C.W.S., Ltd.; C.W.S. Building Department, contractors, West Blandford Street, Newcastle-on-Tyne.

Stoke-on-Trent. — Carmountside secondary school, Abbey Hulton; G. Minshall & Co., builders, 292, Waterloo Road, Cobridge, Staffs.

Sutton Coldfield.—Television transmitting station for the B.B.C.; George Wimpey & Co., Ltd., contractors, Chester Road, Castle Bromwich.

Tiverton.—Houses (83), Wilcombe Lane; H. S. W. Stone & Partners, architects, Lloyds Bank Chambers, 7, Fore Street, Taunton.

Torquay.—Houses (116), Coombe Pafford estate (£143,500); John Lloyd, builder, Lower Ellacombe, Church Road.

Wallsend.—Renewal of electric lighting installation at the swimming baths, Laurel Street; G. N. Teasdale, borough engineer.

Warrington.—Large works on 15-acre site, Hawleys Lane, for Ferrous Light Castings, Ltd., Stafford Road, Wilderspool; secretary.

West Hartlepool.—School on the Rift House estate (£54,000) and houses (150), Seaton Lane and Rift House estates; S. M. Richmond, borough architect.

Batti-Wallahs' Society

THE monthly luncheon of the Batti-Wallahs' Society was held at the Connaught Rooms, London, last week, Col. H. J. Wellingham, president, being in the chair. Before lunch was commenced, Col. Wellingham referred to the loss the Society had sustained by the death of Mr. M. Whitgift, the hon. secretary, and paid tribute to his work. The company then rose in silent memory. Col. Wellingham expressed the thanks of the Society to Mr. J. W. Woolley, who had stepped into the breach, and agreed to act as hon. secretary and treasurer for the remainder of the year, and to Mr. J. Temple Hazell, who was acting as hon. assistant secretary. The principal guest at the lunch was Mr. A. F. G. Brumby, who in an interesting talk on calligraphy, traced its history from early times to the present day. Mr. Woolley announced that a river trip down the Thames had been arranged for 24th July. The next luncheon of the Society will be held on 24th June.